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100-EP506	ESSENTIAL SWITCHGEAR ELEVATIONS	04-01-2016
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100-EP602R	SECONDARY DISTRIBUTION – ONE LINE	02-25-2016
100-EP603T0	SECONDARY DISTRIBUTION – ONE LINE (SUBSTATION "B" AND ESSENTIAL "B") – TEMPORARY	02-25-2016
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100-EP603T5R	SECONDARY DISTRIBUTION – ONE LINE (SUBSTATION "B" AND ESSENTIAL "B") – TEMPORARY #6	02-25-2016
100-EP603T6R	SECONDARY DISTRIBUTION – ONE LINE (SUBSTATION "B" AND ESSENTIAL "B") – TEMPORARY #6	02-25-2016
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100-EP604T1R	SECONDARY DISTRIBUTION – ONE LINE (SUBSTATION C AND ESSENTIAL C) – TEMPORARY #1	02-25-2016
100-EP604T2R	SECONDARY DISTRIBUTION – ONE LINE (SUBSTATION C AND ESSENTIAL C) – TEMPORARY #2	02-25-2016
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100-TY405	ENLARGED ELECTRICAL ROOM C PLAN – SECURITY	02-25-2016
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001-EP103	BASEMENT WEST FLOOR PLAN – POWER	04-01-2016
016-EP601R	ONE LINE DIAGRAM WEST CAMPUS 15KV DISTRIBUTION	02-25-2016
028 89-ED601R	SEQUENCE OF CONSTRUCTION PARTIAL ONE-LINE DIAGRAM – DEMOLITION	02-25-2016
028 89-ES101R	PARITAL SITE PLAN BUILDING 28 AND COMPUTER BUILDING – NEW UTILITY + STANDBY SERVICES	02-25-2016
028 89-EP101R	PARITAL FLOOR PLANS – POWER DISTRIBUTION (BUILDING 28 AND COMPUTER BUILDING)	02-25-2016
028 89-EP601R	PARTIAL ONE-LINE DIAGRAM – NEW WORK	02-25-2016

DRAWING LIST NOTE:

TEMPORARY POWER PLANS ARE DESIGNED TO SHOW ITERATIONS IN THE ELECTRICAL SYSTEM UPGRADE PROCESS TO CLARIFY AND AID IN UNDERSTANDING THE REQUIREMENTS FOR REMOVING 5KV SWITCHGEAR AND REPLACING WITH 15KV SWITCHGEAR WHILE MINIMIZING POWER INTERRUPTIONS TO THE MEDICAL CENTER.

FINAL INSTALLATIONS ARE SHOWN ON THE RESPECTIVE POWER PLANS.

ONE-LINE DIAGRAMS SIMILAR.

TEMPORARY DRAWINGS SHALL NOT BE INCLUDED IN THE PROJECT RECORD DRAWINGS, ONLY THOSE DRAWINGS SHOWING THE FINAL AS-BUILT CONDITIONS.

REFER TO SHEETS ES003, ES004 AND ES005 FOR THE PROPOSED SEQUENCE OF CONSTRUCTION. THE ACTUAL SEQUENCE OF CONSTRUCTION SHALL BE AS DETERMINED BY THE CONTRACTOR IN ACCORDANCE WITH SPECIFICATION SECTION 01 32 16.3- NETWORK ANALYSIS SCHEDULES.

AMENDMENT DRAWING

SUPERSEDES G1002

-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
REVISION 1	04-01-16
Revisions:	Date

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Drawing Title: DRAWING INDEX

Approved Project Director: VAPAHCS PLANNING AND ENGINEERING

Project Title: VA PUGET SOUND HEALTH CARE SYSTEM UPGRADE SEATTLE ELECTRICAL DISTRIBUTION FROM 5kV TO 15kV

Location: 1660 South Columbian Way, Seattle, WA 98108

Date: 02-25-2016 | Checked: K. ANDERSON | Drawn: S. LIM

Project Number: 663-15-102

Building Number: 100

Drawing Number: G1002R

Dwg. -- of --

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

SYMBOLS LEGEND - POWER

SYMBOL	DESCRIPTION
	TRANSFORMER
	DELTA
	WYE
	MEDIUM VOLTAGE CABLE TERMINATOR
	LIGHTNING ARRESTOR
	SURGE ARRESTOR
	NEUTRAL GROUNDING RESISTOR
M	METER
MM	MICROPROCESSOR CONTROLLED MONITOR REFER TO SPECIFICATIONS FOR METERING VALUES AND PROTECTIVE FUNCTIONS
	CURRENT TRANSFORMER
	POTENTIAL TRANSFORMER
AM	INDICATING INSTRUMENT AM–AMMETER; VM–VOLTMETER; FM–FREQUENCY METER; kVAR–KILOVAR METER; kWH–KILOWATT HOUR METER; kWH/D–KILOWATT HOUR DEMAND METER
AS	INSTRUMENT SWITCH AS–AMMETER SWITCH; VS–VOLTMETER SWITCH; SS–SYNCHRONIZING SWITCH; SV–SUPERVISORY (LOCAL–REMOTE) SWITCH
V	VOLTMETER
W	WATTMETER
WH	WATT–HOUR METER
	SEPARABLE CONNECTOR
1	600V DRAWOUT AC TYPE POWER CIRCUIT BREAKER
52	15KV DRAWOUT CIRCUIT BREAKER
CB ST	CIRCUIT BREAKER ST – INDICATES SHUNT TRIP
G	CIRCUIT BREAKER WITH GROUND FAULT PROTECTION
M	MOTOR–OPERATED CIRCUIT BREAKER
O.C.B.	HIGH–VOLTAGE OIL CIRCUIT BREAKER
	HIGH–VOLTAGE DRAWOUT AIR CIRCUIT BREAKER
	SWITCH AND FUSE UNIT
	FUSED DRAWOUT POTENTIAL TRANSFORMER
R 50	RELAY 50 = INSTANTANEOUS OVERCURRENT OR RATE–OF–RISE 51 = AC–TIME OVERCURRENT 67 = AC–DIRECTIONAL OVERCURRENT 86 LOCKING OUT
	METAL OXIDE VARISTOR (MOV)– SURGE PROTECTION
1 K	KIRK–KEY INTERLOCK
	RESISTOR
	MOLDED CASE CIRCUIT BREAKER
	FUSE
M	MOTOR–OPERATED VALVE
	TERMINAL BLOCK
	BATTERY
	COMBINATION STARTER, DISCONNECT SWITCH, WITH HP RATED, 3–POLE, NEMA SIZE 1 MINIMUM, UNLESS NOTED OTHERWISE – OVERCURRENT PROTECTION AS REQUIRED BY EQUIPMENT MANUFACTURER OR AS NOTED
	DISCONNECT SWITCH 3–POLE UNLESS NOTED OTHERWISE
	FUSED DISCONNECT SWITCH 3–POLE UNLESS NOTED OTHERWISE – OVERCURRENT PROTECTION AS REQUIRED BY EQUIPMENT MANUFACTURER OR AS NOTED
C	CONTACTOR

SYMBOLS LEGEND - POWER

SYMBOL	DESCRIPTION
	PAD MOUNT TRANSFORMER
CR	RELAY COIL CR–CONTROL RELAY; TD–TIME DELAY RELAY; UV–UNDERVOLTAGE RELAY; M–MOTOR CONTACTOR;
$M	MOTOR–RATED SWITCH – SIZE OL PER MOTOR REQUIREMENTS
	EQUIPMENT EMERGENCY SHUTDOWN SWITCH
	480Y/277V, 3ø, 4W PANELBOARD
	208Y/120V, 3ø, 4W PANELBOARD
	EQUIPMENT CABINET – TYPE AS NOTED
XXX	PANELBOARD
	TRANSFER SWITCH (AUTO)
XXXXXX	AMPERES SHORT CIRCUIT AVAILABLE (SYMMETRICAL)
	GROUND CONNECTION
	GROUND ROD
	CONDUCTORS – CONNECTED
	CONDUCTORS – NOT CONNECTED
J	JUNCTION BOX
PB	PULLBOX – SIZE AS INDICATED OR AS REQUIRED BY CODE
MH	MANHOLE
	EQUIPMENT CONNECTION
M	MOTOR CONNECTION
G	GENERATOR
	CONDUIT CONCEALED IN CEILING SPACE OR IN WALL. MINIMUM 3/4"C, #12 AWG CONDUCTORS WITH DEDICATED NEUTRAL EACH CIRCUIT, UNLESS OTHERWISE NOTED ON PLAN. PROVIDE EQUIPMENT GROUNDING CONDUCTORS SIZED PER NFPA 70.
	CONDUIT – ROUTED UNDERGROUND
LV	LOW–VOLTAGE WIRING (CLASS B)
	CONDUIT STUB – TERMINATE WITH BUSHING OR CAP IF UNDERGROUND
	BREAK LINE
	CONDUIT SEAL
	EXPANSION FITTING
GFCI, WP	GFCI, RECEPTACLE NEMA 5–20R, WITH METALLIC WHILE–IN–USE COVER
	RECEPTACLE NEMA 5–20R, +18" AFF UON
	EXTERIOR WALL MOUNTED LIGHTING FIXTURE
	COILED CONDUCTOR/CABLE
HV ## LV ##	FEEDER NO/TAG

SYMBOLS LEGEND - GENERAL

SYMBOL	DESCRIPTION
	HEAVY LINEWEIGHT INDICATES NEW WORK
	LIGHT LINEWEIGHT INDICATES EXISTING INFORMATION
	POINT OF CONNECTION (POC) BETWEEN NEW AND EXISTING
XX #	EQUIPMENT IDENTIFIER (XX = ABBREVIATION # = EQUIPMENT SCHEDULE NUMBER)
1	DRAWING CONSTRUCTION ("FLAG") NOTE
X–XX	EQUIPMENT IDENTIFIER
EXXX / EXXX	MATCHLINE
	REVISION CLOUD (ENCIRCLES DRAWING CHANGES MADE SINCE THE PREVIOUS RELEASE)
1	REVISION REFERENCE NUMBER
	DETAIL REFERENCE DETAIL IDENTIFICATION NUMBER SHEET WHERE DETAIL IS DRAWN
	ELEVATION REFERENCE ELEVATION IDENTIFICATION NUMBER SHEET WHERE ELEVATION IS DRAWN
	SECTION REFERENCE SECTION IDENTIFICATION NUMBER SHEET WHERE SECTION IS DRAWN
PLAN NORTH	NORTH REFERENCE
UV–42	EQUIPMENT IDENTIFICATION
A WATTS	LIGHTING FIXTURE TAG

BID OPTION TAG

OP#	REFER TO SPECIFICATION 01000 SECTION 1.3 "STATEMENT OF BID ITEMS."

AMENDMENT DRAWING

SUPERSEDES ES001

Revisions	Date
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
REVISION 1	04-01-16

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Drawing Title: GENERAL SYMBOLS

Approved Project Director: - / - / VAPAHCS PLANNING AND ENGINEERING

Project Title: VA PUGET SOUND HEALTH CARE SYSTEM UPGRADE SEATTLE ELECTRICAL DISTRIBUTION FROM 5kV TO 15kV

Location: 1660 South Columbian Way, Seattle, WA 98108

Date: 01-19-2016 | Checked: K.ANDERSON | Drawn: A.WOOLF

Project Number: 663-15-102

Building Number: 100

Drawing Number: ES001R

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Office of Construction and Facilities Management

Department of Veterans Affairs

P:\269-1507 VAMC Seattle 5kV to 15kV Upgrade\DWG\ELEC\100-ES001.dwg 3-30-16 10:29:03 AM cpeters

VA FORM 08-6231

SUGGESTED SEQUENCE OF CONSTRUCTION - UPGRADE NORMAL POWER SYSTEM

NORMAL POWER SYSTEM UPGRADE

PROVIDE TEMPORARY CONNECTION FOR BUILDING 28/89 (TELEPHONE AND DATA CENTER)

1. VERIFY PHASE ROTATION AT BUILDING 28/89 PANEL DP2.
2. INSTALL A 150KVA STEP-UP TRANSFORMER (208V DELTA TO 480Y/277V) NEAR BUILDING 1 SUB 1A IN SUB-BASEMENT ELECTRICAL ROOM. GROUND SECONDARY TO SUBSTATION GROUNDING SYSTEM.
3. INSTALL TEMPORARY 225A ENCLOSED BREAKER NEAR TRANSFORMER, CONNECT TO 480V SECONDARY.
4. CONFIGURE SPARE 800A FUSIBLE SWITCH IN SUB 1A WITH 600A FUSES.
5. INSTALL 600A 3Ø-3W FEEDER BETWEEN SWITCH AND TRANSFORMER.
6. ROUTE 480V ARMORED ALUMINUM CABLE TO BUILDING 28/89 PANEL DP2.
7. SWITCH CRITICAL LOAD TO GENERATOR.
8. SHUT DOWN FEEDER 2-4. DISCONNECT BUILDING 28/89 SUPPLY FEEDER AND CONNECT TEMPORARY FEEDER AT PANEL DP2. ENERGIZE AND TEST, THEN SWITCH CRITICAL LOAD TO NORMAL.
9. TAPE AND STOW DISCONNECTED 480V SUPPLY FEEDER FOR HOT-TEST AND RE-USE AFTER NEW 15KV FEEDER IS INSTALLED.

ESTABLISH A NEW MV ROUTE FROM THE ENERGY PLANT TO ELECTRICAL ROOMS B AND C

10. COORDINATE SHUTDOWNS FOR UNIT SUBSTATION D DURING REMOVAL OF EXISTING FEEDER 2-4 AND CONNECTION OF TEMPORARY FEEDER 2-4.
11. TRANSFER SUBSTATIONS A, B AND C TO 5KV FEEDERS SUPPLIED BY SOUTH HALF MAIN SWITCHGEAR.
12. SHUT DOWN NORTH HALF MAIN SWITCHGEAR AT MAIN BREAKER HV-2. OPEN ALL FEEDER BREAKERS EXCEPT FEEDER 2-6 TO SUBSTATION D.
13. DISCONNECT FEEDER ON MAIN SWITCHGEAR BREAKER 2-4 AND REMOVE TO REACTOR IN ADJACENT ROOM.
14. ENERGIZE NORTH HALF MAIN SWITCHGEAR AND FEEDER TO SUBSTATION D.
15. INSTALL A NEW DUCT BANK WITH FOUR DUCTS FROM MAIN SWITCHGEAR ROOM TO SOUTH END OF NURSING HOME ANNEX. PROVIDE NEW MANHOLE ET1 ON DUCT BANK OUTSIDE OF ENERGY PLANT.
16. INSTALL #1/0 15KV FEEDER FROM MANHOLE ET1 THROUGH NURSING HOME ANNEX TO TAP BOX IN ELECTRICAL ROOM C. LABEL FEEDER AS "ESSENTIAL C" AND AS "TEMP 15KV #1".
17. INSTALL TEMPORARY #1/0 15KV FEEDER FROM MANHOLE ET1 TO ELECTRICAL ROOM C, SAME ROUTE AS TEMP 15KV #1. PROVIDE SUFFICIENT LENGTH IN ELECTRICAL ROOM C TO TERMINATE IN NEW SUBSTATION C EAST END WHEN EQUIPMENT IS INSTALLED. GROUND FEEDER END IN MANHOLE ET1. LABEL FEEDER WITH "TEMP 15KV #2".
18. INSTALL 350KCMIL 15KV FEEDER FROM TAP BOX NEAR GENERATOR SWITCHGEAR ROOM TO TAP BOX IN SUB-BASEMENT TUNNEL NORTH OF ELECTRICAL ROOM B. USE 350KCMIL CABLE IN RIGID METAL CONDUIT IN TUNNEL. LABEL FEEDER AS "CAMPUS INTERTIE - ESSENTIAL POWER" AND "TEMP 15KV #2".
19. PROVIDE TEMPORARY #1/0 15KV FEEDER EXTENSION FROM TAP BOX NEAR GENERATOR SWITCHGEAR ROOM TO MANHOLE ET1. LABEL FEEDER SECTION AS "TEMP 15KV #2" ONLY.
20. EXTEND TEMP 15KV #1 FROM ELECTRICAL ROOM C TO TUNNEL TAP BOX LOCATION, USING #1/0 ARMORED CABLE. LABEL FEEDER SECTION AS "TEMP 15KV #1" ONLY. PROVIDE EXCESS LENGTH TO REACH WEST END OF NEW SUBSTATION B AFTER IT IS INSTALLED. STORE EXCESS IN TUNNEL UNTIL NEEDED.
21. PROVIDE TRANSFORMER PAD AND EQUIPMENT PAD NEAR NORTH END OF SERVICE YARD. INSTALL CONDUITS FOR TEMPORARY FEEDERS BETWEEN PADS AND FROM EACH PAD TO NEW MANHOLE OUTSIDE OF ENERGY PLANT.
22. RELOCATE UNUSED STEP-UP 4.16KV TO 13.8KV 2500KVA TRANSFORMER TO NEW PAD FROM LOCATION NEAR WEST CAMPUS SERVICE YARD.
23. PROVIDE TEMPORARY STRUCTURE TO PROTECT 15KV DUPLEX BREAKER. INSTALL POWER FROM ENERGY PLANT VIA EXISTING 480V DUCT BANK AND MANHOLE FOR LIGHTING, CONVENIENCE POWER AND INTERIOR HEATING.
24. INSTALL RIGHT-END 15KV SECTION FOR NEW SUBSTATION A IN STRUCTURE. PROVIDE TEMPORARY LABELS FOR ONE BREAKER AS "TD1" AND OTHER BREAKER AS "TD2".
25. INSTALL TEMPORARY CONNECTIONS FROM MANHOLE ET1 TO DUPLEX BREAKERS.
26. INSTALL TEMPORARY CONNECTION FROM BREAKER COMMON BUS TO STEP-UP TRANSFORMER SECONDARY.
27. (1) SHUT DOWN NORTH HALF MAIN SWITCHGEAR. INSTALL 350KCMIL 5KV FEEDER FROM MAIN SWITCHGEAR BREAKER 2-4 TO THE TEMPORARY TRANSFORMER VIA MANHOLE ET1.
28. ENERGIZE NORTH HALF MAIN SWITCHGEAR, CLOSE BREAKER 2-4 AND PERFORM FUNCTIONAL TEST TO DUPLEX BREAKERS TD1/TD2.
29. CLOSE FEEDER BREAKERS 2-1, 2-2, 2-3, 2-6 AND CAPACITOR BREAKER 2-5. REMOVE LOCK FROM TIE BREAKER.

INSTALL TEMPORARY POWER CENTER FOR ELECTRICAL ROOM B

30. COORDINATE OUTAGE SCHEDULE FOR EQUIPMENT SUPPLIED BY SUBSTATION B. EACH DOWNSTREAM CONNECTION REQUIRES TWO OUTAGES: FIRST OUTAGE TO OFF-LOAD EXISTING SUBSTATION B TO TEMPORARY POWER AND MEGGER TEST FEEDER; SECOND OUTAGE TO TRANSFER LOAD FROM TEMPORARY POWER TO NEW SUBSTATION B.
31. VERIFY PHASE ROTATION AT LOAD EQUIPMENT FOR EACH FEEDER SUPPLIED BY SUBSTATION B.
32. OPEN NORTH WALL FOR NEW DOUBLE DOOR PER ARCHITECTURAL DESIGN TO ALLOW STAGING EQUIPMENT.
33. MOVE IN NEW SUBSTATION B EAST END SECTIONS (DUPLEX BREAKERS, TRANSFORMER). INSTALL IN TEMPORARY POSITION AGAINST EAST WALL. PROVIDE TEMPORARY TRANSITION BOX WITH 2000A MAIN BREAKER.
34. INSTALL FEEDER TEMP 15KV #2 AS #1/0 ARMORED TRIPLEX 15KV CABLE IN FIRST OF TWO SPARE DUCTS FROM SUB-BASEMENT TUNNEL TAP BOX TO EITHER BREAKER IN EAST END SECTION.
35. INSTALL TEMPORARY SWITCHBOARD IN BREEZEWAY.
36. INSTALL CONNECTION FROM SWITCHBOARD TO 2000A BREAKER IN EAST END SECTION, USING TYPE MC CABLE.
37. ENERGIZE AND PERFORM FUNCTIONAL TEST OF TEMPORARY SYSTEM.
38. DISCONNECT DOWNSTREAM DISTRIBUTION EQUIPMENT IN ELECTRICAL ROOM B FROM SUBSTATION B SWITCHGEAR. PROVIDE TEMPORARY FEEDERS FROM SWITCHBOARD USING TYPE MC CABLE.
39. MEGGER TEST FEEDERS FROM SUBSTATION B SWITCHGEAR THAT LEAVE THE ELECTRICAL ROOM. INDICATE FEEDERS THAT FAIL THE TEST.
40. INTERCEPT FEEDERS FROM SUBSTATION B SWITCHGEAR THAT LEAVE THE ELECTRICAL ROOM. SPLICE TO FEEDER CABLE IN EXISTING OR NEW PULL/SPLICE BOXES, USING TYPE MC CABLE.

REMOVE SUBSTATION B

41. REMOVE WIRE AND CONDUIT BETWEEN SUBSTATION B AND DOWNSTREAM EQUIPMENT LOCATED IN ELECTRICAL ROOM B. RETAIN CONDUIT SECTIONS ATTACHED TO DOWNSTREAM EQUIPMENT ENCLOSURES.
42. REMOVE WIRE AND CONDUIT BETWEEN SUBSTATION B AND SPLICE POINTS ON DOWNSTREAM FEEDERS.
43. DISCONNECT METER COMMUNICATION RS-485 CABLE AND STOW FOR RE-USE.
44. DISCONNECT SUPPLY FEEDERS. REMOVE EXISTING SUBSTATION B.
45. COMPLETE EXTERIOR WALL MODIFICATIONS PER ARCHITECTURAL DESIGN.

INSTALL NEW SUBSTATION B

46. INSTALL NEW SUBSTATION B WEST END AND 480V SWITCHGEAR SECTIONS.
47. EXTEND FEEDER TEMP 15KV #1 AS #1/0 ARMORED TRIPLEX CABLE LENGTH STORED IN TUNNEL INTO ELECTRICAL ROOM B, USING SECOND OF TWO SPARE DUCTS AT EAST END OF ELECTRICAL ROOM. CONNECT TO WEST INSIDE BREAKER OF SUBSTATION B.
48. EXTEND HOUSEKEEPING PAD ACROSS THE FRONT AREA OF THE LV SWITCHGEAR SO THE TOP POSITION IN A FOUR-HIGH SWITCHGEAR CUBICLE MEETS CODE.
49. EXTEND STOWED METER WIRING TO NEW SUBSTATION B.
50. PROVIDE TEMPORARY 480V JUMPER FROM LINE SIDE OF WEST MAIN BREAKER TO LINE SIDE OF EAST MAIN. ENERGIZE AND PERFORM FUNCTIONAL TEST OF SWITCHGEAR. REMOVE JUMPER.
51. INSTALL NEW FEEDER WIRE AND CONDUIT BETWEEN SUBSTATION B AND DOWNSTREAM EQUIPMENT IN ELECTRICAL ROOM B. REMOVE TEMPORARY WIRING BACK TO TEMPORARY SWITCHBOARD IN REUSABLE CONDITION.
52. INSTALL NEW FEEDER WIRE AND CONDUIT BETWEEN SUBSTATION B AND SPLICE POINTS FOR FEEDERS SERVING EQUIPMENT OUTSIDE OF ELECTRICAL ROOM B. REMOVE TEMPORARY SPLICES; REMOVE TEMPORARY WIRING BACK TO SWITCHBOARD IN REUSABLE CONDITION. SPLICE PERMANENT SECTIONS TOGETHER FOR EACH FEEDER.
53. NOT USED.
54. DE-ENERGIZE TEMP 15KV #2 AND DISCONNECT FROM EAST END EQUIPMENT.
55. REMOVE TEMPORARY MAIN BREAKER AND FEEDER TO SWITCHBOARD IN BREEZEWAY.
56. RELOCATE EQUIPMENT TO CONNECT TO EAST MAIN OF NEW SUBSTATION B IN FINAL CONFIGURATION.
57. RECONNECT TEMP 15KV #2 TO INSIDE EAST END BREAKER.
58. INSTALL 15KV CROSSOVER FEEDERS SO THE INSIDE BREAKER OF ONE END IS CONNECTED TO THE OUTSIDE BREAKER OF THE OTHER END AND VICE VERSA. THIS WILL INVOLVE SWITCHING OUTAGES.
59. LEAVE SUBSTATION B RUNNING ENTIRELY FROM TEMP 15KV #1 WITH TEMP 15KV #2 DE-ENERGIZED.

INSTALL TEMPORARY POWER FOR ELECTRICAL ROOM C

60. COORDINATE OUTAGE SCHEDULE FOR EQUIPMENT SUPPLIED BY SUBSTATION C. EACH DOWNSTREAM CONNECTION REQUIRES THREE OUTAGES: FIRST OUTAGE TO CONFIGURE EXISTING SUBSTATION C AS SINGLE-ENDED SUBSTATION, SECOND OUTAGE TO OFF-LOAD SUBSTATION C TO TEMPORARY POWER AND MEGGER TEST FEEDER; THIRD OUTAGE TO TRANSFER LOAD FROM TEMPORARY POWER TO NEW SUBSTATION C.
61. VERIFY PHASE ROTATION AT LOAD EQUIPMENT FOR EACH FEEDER SUPPLIED BY SUBSTATION C.
62. RELOCATE SWITCHBOARD FROM BREEZEWAY OUTSIDE OF ELECTRICAL ROOM B TO ELECTRICAL ROOM C.
63. DISCONNECT AND REMOVE 5KV CROSSOVER FEEDERS ABOVE SUBSTATION C. CLOSE LEFT MAIN AND TIE BREAKERS; OPEN AND LOCK OUT RIGHT MAIN BREAKER.
64. REMOVE RIGHT (WEST) END 5KV SWITCH AND TRANSFORMER FROM SUBSTATION C.
65. INSTALL ESSENTIAL C FRONT END: TRANSFORMER, SECONDARY MAIN AND INTERRUPTER BREAKER SECTIONS ONLY. DO NOT DISTURB EXISTING ESSENTIAL SWITCHGEAR.
66. INSTALL TEMPORARY FEEDER FROM ESSENTIAL C FRONT END MAIN BREAKER TO TEMPORARY SWITCHBOARD.
67. STAGE THE NEW ESSENTIAL C SWITCHGEAR SECTION TO BE INSTALLED LATER.
68. INSTALL PERMANENT FEEDER FROM ESSENTIAL C FRONT END TO ELECTRICAL ROOM C TAP BOX.
69. ENERGIZE AND PERFORM FUNCTIONAL TEST OF TEMPORARY SYSTEM.
70. DISCONNECT DOWNSTREAM DISTRIBUTION EQUIPMENT IN ELECTRICAL ROOM C FROM SUBSTATION C SWITCHGEAR. PROVIDE TEMPORARY FEEDS FROM SWITCHBOARD USING TYPE MC CABLE.
71. MEGGER TEST FEEDERS FROM SUBSTATION C SWITCHGEAR. INDICATE FEEDERS THAT FAIL THE TEST.
72. INTERCEPT FEEDERS FROM SUBSTATION C SWITCHGEAR THAT LEAVE THE ELECTRICAL ROOM. SPLICE TO FEEDER CABLE IN EXISTING OR NEW PULL/SPLICE BOXES, USING TYPE MC CABLE.

REMOVE SUBSTATION C

73. DISCONNECT 480V FEEDERS: REMOVE WIRE AND CONDUIT FOR OVERHEAD FEEDERS; COIL WIRE FOR BELOW-FLOOR LOAD FEEDERS AND BAG FOR RE-USE IF IN GOOD VISIBLE CONDITION AND PASSING THE MEGGER TEST.
74. DISCONNECT SUPPLY FEEDERS AND REMOVE LEFT (EAST) END 5KV SWITCH AND TRANSFORMER FROM SUBSTATION C.
75. DISCONNECT METER COMMUNICATION RS-485 CABLE AND STOW FOR RE-USE.
76. REMOVE SUBSTATION C 480V SWITCHGEAR IN REUSABLE CONDITION. PLUG UNUSED CONDUITS IN SLAB.

INSTALL NEW SUBSTATION C

77. INSTALL 480V SWITCHGEAR AT SAME POSITION AS ORIGINAL GEAR. ALIGN WITH BELOW-SLAB RACEWAY ENTRIES AS BEST AS ACHIEVABLE.
78. EXTEND HOUSEKEEPING PAD ACROSS THE FRONT AREA OF THE LV SWITCHGEAR SO THE TOP POSITION IN A FOUR-HIGH SWITCHGEAR CUBICLE MEETS CODE. MINIMUM EXTENSION IS 42".
79. EXTEND METER AND CONTROL WIRING FROM NEAREST ACCESS POINTS TO NEW SUBSTATION C.
80. INSTALL TRANSFORMERS AND PRIMARY BREAKER SECTIONS AT EACH END OF 480V SWITCHGEAR.
81. INSTALL 15KV CROSSOVER FEEDERS SO THE INSIDE BREAKER OF ONE END IS CONNECTED TO THE OUTSIDE BREAKER OF THE OTHER END AND VICE VERSA.
82. CONNECT EAST INSIDE BREAKER OF SUBSTATION C TEMPORARILY TO TEMP 15KV #2. CONNECT OTHER END IN MANHOLE ET1 TO TEMP 15KV #2 CABLES FROM BREAKER TD2.
83. ENERGIZE AND PERFORM FUNCTIONAL TEST OF SWITCHGEAR.
84. SWITCH THE LOAD AT SUBSTATION B TO RUN ENTIRELY FROM TEMP 15KV #2.
85. INSTALL NEW FEEDER WIRE AND CONDUIT BETWEEN SUBSTATION C AND DOWNSTREAM EQUIPMENT IN ELECTRICAL ROOM C. REMOVE TEMPORARY WIRING BACK TO TEMPORARY SWITCHBOARD IN REUSABLE CONDITION.
86. INSTALL NEW FEEDER WIRE AND CONDUIT BETWEEN SUBSTATION C AND SPLICE POINTS FOR FEEDERS SERVING EQUIPMENT OUTSIDE OF ELECTRICAL ROOM C. REMOVE TEMPORARY SPLICES; REMOVE TEMPORARY WIRING BACK TO SWITCHBOARD IN REUSABLE CONDITION. SPLICE PERMANENT SECTIONS TOGETHER FOR EACH FEEDER.
87. NOT USED.
88. EXTEND TEMP 15KV #1 FROM ROOM C TAP BOX TO OTHER INSIDE BREAKER OF SUBSTATION C. SWITCH SUBSTATION C TO RUN ON TEMP 15KV #1.
89. SWITCH SUBSTATION B LOAD FROM TEMP 15KV #2 TO TEMP 15KV #1. SHUT DOWN TEMP 15KV #2 AND DISCONNECT FROM SUBSTATION B. REMOVE TEMPORARY CONDUCTORS BETWEEN GENERATOR SWITCHGEAR ROOM TAP BOX AND MANHOLE ET1.
90. REMOVE FEEDER BETWEEN TEMPORARY SWITCHBOARD AND ESSENTIAL C FRONT END. RETAIN SWITCHBOARD FOR RE-USE.

EXTEND EAST CAMPUS SERVICE YARD TO SOUTH

91. INSTALL SOUTH HALF OF NEW SERVICE YARD THAT IS OUTSIDE OF THE EXISTING SERVICE YARD WALL. PROVIDE SOUTH TRANSFORMER PAD. INSTALL OIL-WATER SEPARATOR SOUTH OF NEW YARD PERIMETER.
92. INSTALL SOUTH VISTA SWITCH VAULT AND SERVICE DUCT BANK TO SCL MANHOLE. LEAVE TWO DUCTS IN SERVICE DUCT BANK STUBBED FOR CONNECTION TO NORTH VISTA SWITCH.
93. INSTALL MANHOLE S1 IN SW CORNER NEAR PAD FOR SOUTH TRANSFORMER. INSTALL DUCT BANK SECTION TOWARDS EXISTING YARD. DRAIN MANHOLE SUMP TO OIL-WATER SEPARATOR (PUMP AS REQUIRED).
94. INSTALL INTERCONNECTING DUCTS FROM SWITCH TO TRANSFORMER AND FROM MANHOLE S1 TO TRANSFORMER.
95. INSTALL YARD SERVICES ELECTRICAL PANEL ON EAST WALL. PROVIDE THREE LOW VOLTAGE RACEWAYS TO THE ENERGY PLANT. YARD PANEL POWER WILL COME FROM ESSENTIAL POWER MCC QMCC-A1 VIA TRANSFORMER AND ENCLOSED BREAKER. PROVIDE POWER FAIL RELAY IN YARD PANEL AND CONNECT TO ENERGY PLANT MONITORING SYSTEM.
96. INSTALL MANHOLE ACCESSORIES CIRCUIT FROM YARD PANEL TO MANHOLE S1.
97. INSTALL RACEWAY FOR MANHOLE ACCESSORIES CIRCUIT FROM YARD PANEL TO NORTH LIMIT OF YARD CONSTRUCTION, FOR EXTENSION TO MANHOLE N1 DURING YARD COMPLETION.

REPLACE SOUTH SERVICE TRANSFORMER

98. TRANSFER SUBSTATIONS A, B AND C TO 5KV FEEDERS SUPPLIED BY NORTH HALF MAIN SWITCHGEAR. RUN ENTIRE SYSTEM FROM NORTH SIDE. LOCK OUT TIE BREAKER IN OPEN POSITION.
99. SHUT DOWN SOUTH HALF MAIN SWITCHGEAR AT MAIN BREAKER.
100. SCL DE-ENERGIZES SOUTH SERVICE AND REMOVES SCL EQUIPMENT AT SOUTH END OF MAIN SWITCHGEAR.
101. SCL COORDINATES TEMPORARY DE-ACTIVATION OF SOUTH UTILITY METER ON ENERGY PLANT WALL AND REMOVAL OF INPUT CONNECTIONS TO SOUTH MAIN SWITCHGEAR INSIDE.
102. REMOVE SOUTH END OF MAIN SWITCHGEAR AND FEEDER TO SOUTH TRANSFORMER.
103. SCL TO COORDINATE INSTALLATION OF NEW 15KV EUSERC CABINET AND TRANSITION SECTION AT SOUTH END OF MAIN SWITCHGEAR PAD.
104. SCL REMOVES TRANSFORMER AND OTHER OUTSIDE EQUIPMENT ON SOUTH SERVICE.
105. PROVIDE CONSTRUCTION BARRIER SEPARATING NORTH HALF OF EXISTING SERVICE YARD FROM SOUTH HALF.
106. REMOVE SOUTH HALF OF ORIGINAL SERVICE YARD.
107. EXTEND NEW SERVICE YARD NORTH TO CONSTRUCTION BARRIER.
108. PROVIDE NORTH VISTA SWITCH VAULT AND EXTEND SERVICE DUCTS TO NORTH VAULT. PROVIDE NEW NORTH TRANSFORMER CONDUIT STUBS FROM VAULT TO CONSTRUCTION BARRIER.
109. SAWCUT SOUTH DUCT BANK TO ENERGY PLANT, REMOVE CONDUIT STUB-UPS AND EXTEND TO CONNECT WITH SOUTH YARD DUCT BANK FROM MANHOLE S1.
110. PROVIDE TEMPORARY SEPARATION FENCE ACROSS NEW YARD NORTH OF VISTA SWITCH PADS. YARD AREA SOUTH OF FENCE BECOMES SCL TERRITORY.
111. SCL INSTALLS SOUTH TRANSFORMER AND BOTH VISTA SWITCHES.
112. SCL INSTALLS NEW 26KV FEEDER BETWEEN SOUTH SWITCH AND TRANSFORMER.
113. SCL COORDINATES INSTALLATION OF NEW 15KV FEEDER BETWEEN TRANSFORMER AND SOUTH EUSERC CABINET IN MAIN SWITCHGEAR ROOM.
114. SCL COORDINATES CONNECTION FROM EUSERC CABINET TO EXISTING SOUTH METER ON ENERGY PLANT EXTERIOR WALL.
115. SCL INSTALLS 26KV SUPPLY FEEDER TO SOUTH VISTA SWITCH, ENERGIZES AND TESTS.

CONNECT TEMPORARY FEEDERS TO NEW SERVICE

116. COORDINATE SHORT OUTAGE FOR EQUIPMENT SUPPLIED BY SUBSTATION B AND SUBSTATION C.
117. OPEN ALL PRIMARY BREAKERS IN SUBSTATION B AND SUBSTATION C.
118. INSTALL TEMPORARY #4/0 LOAD-SIDE CONNECTION WITH TEMPORARY TRANSITION SECTION, FROM NEW SOUTH END EUSERC SECTION IN MAIN SWITCHGEAR ROOM TO EXTERIOR STRUCTURE CONTAINING TD1/TD2 VIA MANHOLE ET1.
119. REMOVE TEMPORARY 5KV-15KV TRANSFORMER AND SUPPLY FEEDER BACK TO MAIN SWITCHGEAR ROOM. RETURN TRANSFORMER TO ORIGINAL WEST CAMPUS EQUIPMENT PAD.
120. COMPLETE TEMPORARY SERVICE FEEDER INTO LINE SIDE OF TD1/TD2.
121. ENERGIZE AND VERIFY CORRECT OPERATION FROM NEW SCL SERVICE TO LINE SIDE OF PRIMARY BREAKERS AT SUBSTATION B AND SUBSTATION C.
122. CLOSE PRIMARY BREAKERS IN SUBSTATION B AND SUBSTATION C.
123. SUBSTATION B AND SUBSTATION C LOADS ARE NOW ISOLATED FROM MAIN 5KV SWITCHGEAR IN ENERGY PLANT.

CONTINUED ON SHEET ES004

GENERAL NOTES:

THE FOLLOWING SEQUENCE PRESENTS SUGGESTED STEPS FOR REPLACING THE ELECTRICAL SWITCHGEAR WHILE MAINTAINING SERVICE TO THE MEDICAL CENTER. THE EXACT SEQUENCE SHALL BE AS DETERMINED BY THE CONTRACTOR. REFER TO SPECIFICATIONS SECTIONS 01 32 16.13, NETWORK ANALYSIS SCHEDULES - MAJOR PROJECTS, FOR THE PROJECT SCHEDULE DEVELOPMENT REQUIREMENTS.

BASE PROJECT - UPGRADE NORMAL POWER

ESSENTIAL 'C' 15KV BREAKER SECTION, TRANSFORMER AND SECONDARY MAIN BREAKER ARE USED FOR TEMPORARY POWER IN ELECTRICAL ROOM C DURING REPLACEMENT OF UNIT SUBSTATION 'C'. EQUIPMENT IS LEFT IN PLACE AFTER TEMPORARY CONSTRUCTION PHASE.

BID OPTION 2 - UPGRADE ESSENTIAL POWER

ESSENTIAL 'C' LOW VOLTAGE SWITCHGEAR IS STAGED BEFORE NEW UNIT SUBSTATION 'C' IS INSTALLED FOR BASE PROJECT.

BID OPTION 5 - REPLACE TRANSFER SWITCHES

TRANSFER SWITCH REPLACEMENT TO BE COORDINATED WITH SHUTDOWN OF EXISTING TRANSFER SWITCH. SEE INDIVIDUAL UNIT SUBSTATION REPLACEMENT SECTIONS.

AMENDMENT DRAWING

SUPERSEDES ES003

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REVISION 1	04-01-16
Revisions	Date

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Drawing Title: SEQUENCE OF CONSTRUCTION NORMAL POWER SYSTEM UPGRADE

Approved Project Director: VAPAHCS PLANNING AND ENGINEERING

Project Title: VA PUGET SOUND HEALTH CARE SYSTEM UPGRADE SEATTLE ELECTRICAL DISTRIBUTION FROM 5kV TO 15kV

Location: 1660 South Columbian Way, Seattle, WA 98108

Date: 02-25-2016 | Checked: K.ANDERSON | Drawn: A.WOOLF

Project Number: 663-15-102

Building Number: 100

Drawing Number: ES003R

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Office of Construction and Facilities Management

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VA FORM 08-6231

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SUGGESTED SEQUENCE OF CONSTRUCTION - UPGRADE NORMAL POWER SYSTEM (CONT.)

NORMAL POWER SYSTEM UPGRADE (CONT'D FROM SHEET ES003)

CONFIGURE TEMPORARY POWER FOR SUBSTATION A LOADS

124. COORDINATE OUTAGE SCHEDULE FOR EQUIPMENT SUPPLIED BY SUBSTATION A. EACH DOWNSTREAM CONNECTION REQUIRES TWO OUTAGES: FIRST OUTAGE TO OFF-LOAD EXISTING SUB TO TEMPORARY POWER AND MEGGER TEST FEEDER; SECOND OUTAGE TO TRANSFER LOAD FROM TEMPORARY POWER TO NEW SUB. NOTE: MEGGER TESTS APPLICABLE TO SUBSTATION A ONLY.
125. VERIFY PHASE ROTATION AT LOAD EQUIPMENT FOR EACH FEEDER SUPPLIED BY SUBSTATION A.
126. FABRICATE TEMPORARY POWER CENTER AT SOUTH END OF ENERGY PLANT, USING NEW SUBSTATION A RIGHT END TRANSFORMER, TEMPORARY 15KV FUSED SWITCH AND OLD SUBSTATION C SWITCHGEAR. [BID OPTION 2 – USE ESSENTIAL 'B' 15KV BREAKER SECTION INSTEAD OF FUSED SWITCH.]
127. INSTALL JUMPER FEEDER BETWEEN LINE LUGS OF LEFT MAIN BREAKER AND LINE LUGS OF RIGHT MAIN BREAKER IN OLD SUBSTATION C SWITCHGEAR.
128. EXTEND FEEDER TEMP 15KV #2 FROM MANHOLE ET1 TO 15KV BREAKER AT TEMPORARY POWER CENTER. NOTE: OTHER FEEDERS IN MANHOLE ET1 CARRY ALL EAST CAMPUS LOADS.
129. LOCK OUT TIE BREAKER IN TEMPORARY SWITCHGEAR. ENERGIZE AND PERFORM FUNCTIONAL TEST OF TEMPORARY SYSTEM.
130. INSTALL TEMPORARY DISTRIBUTION PANEL IN REACTOR ROOM. INSTALL FEEDER FROM TEMPORARY POWER CENTER.
131. NOT USED.
132. NOT USED.
133. RUN SELECTED TEMPORARY FEEDERS TO SUBSTATION A ENERGY PLANT LOADS FROM REACTOR ROOM TEMPORARY PANEL.
134. RUN REMAINING TEMPORARY FEEDERS TO SUBSTATION A ENERGY PLANT LOADS AND TO BUILDING 36 FEEDER PULL/SPLICE BOX FROM TEMPORARY POWER CENTER.
135. SUBSTATION A IS NOW ISOLATED FROM MAIN 5KV SWITCHGEAR.

REMOVE SUBSTATION A AND MAIN SWITCHGEAR

136. SCL DE-ENERGIZES NORTH SERVICE AND REMOVES TRANSFORMER, OTHER EQUIPMENT.
137. REMOVE 5KV SUBSTATION A CROSSOVER FEEDERS AND SUPPLY FEEDERS TO MAIN SWITCHGEAR.
138. REMOVE ALL 5KV FEEDER WIRE FROM MAIN SWITCHGEAR TO ELECTRICAL ROOM B AND TO ELECTRICAL ROOM C.
139. REMOVE STUB END OF TEMPORARY FEEDER 2-4.
140. DISCONNECT 480V FEEDERS: REMOVE WIRE AND CONDUIT FOR OVERHEAD FEEDERS; COIL WIRE FOR BELOW-FLOOR LOAD FEEDERS AND BAG FOR RE-USE IF IN GOOD VISIBLE CONDITION AND PASSING THE MEGGER TEST.
141. DISCONNECT METER COMMUNICATION RS-485 CABLE AND STOW FOR RE-USE. REMOVE SUBSTATION A. PLUG UNUSED CONDUITS IN SLAB.
142. DISCONNECT METER COMMUNICATION RS-485 CABLE AND STOW FOR RE-USE. REMOVE MAIN SWITCHGEAR. PLUG UNUSED CONDUITS IN SLAB.
143. MODIFY REACTOR ROOM DOOR. REMOVE REACTOR IN REACTOR ROOM.
144. REMOVE REMAINING PORTION OF FEEDER 2-4 FROM REACTOR TO BUILDING 28/89. RETAIN CONDUITS IN TUNNEL AND WEST D&T BUILDING FOR RE-USE.

INSTALL NEW MAIN SWITCHGEAR - TEMPORARY PHASE

145. INSTALL NEW 15KV MAIN SWITCHGEAR NORTH AND CENTER SECTIONS TO SOUTH TIE BREAKER. PROVIDE TEMPORARY TRANSITION SECTION ON OPEN END OF SOUTH TIE BREAKER SECTION.
146. SET SOUTH HALF SWITCHGEAR SECTIONS ON SUBSTATION A PAD. PROVIDE TEMPORARY TRANSITION SECTION ON OPEN END OF MAIN BREAKER SECTION.
147. INSTALL TEMPORARY JUMPER FEEDER BETWEEN TRANSITION SECTIONS.
148. CONNECT CONTROL POWER FROM DC SUPPLY TO NORTH AND CENTER SECTIONS. EXTEND STOWED METER WIRING TO NEW SWITCHGEAR.
149. JUMPER CONTROL POWER TO SOUTH SECTIONS AT TEMPORARY LOCATION.
150. TEST SWITCHGEAR CONTROL FUNCTIONALITY.
151. PROVIDE 13,800V TEST SUPPLIES AT LINE SIDE OF NORTH MAIN BREAKER AND LINE SIDE OF SOUTH MAIN BREAKER. TEST SWITCHGEAR METER AND RELAY FUNCTIONALITY. REMOVE TEST SUPPLIES.
152. LOCK NORTH TIE BREAKER OPEN. REMOVE JUMPER FEEDER. JUMPER CONTROL POWER AND TRANSITION SECTIONS. REMOVE SOUTH SECTIONS FROM SUBSTATION A PAD AND STORE NEXT TO SOUTH EUSERC CABINET.
153. INSTALL NORTH END EUSERC ON NEW MAIN SWITCHGEAR.

REPLACE NORTH SERVICE TRANSFORMER AND FINISH SERVICE YARD

154. SCL REMOVES 26KV FEEDER FROM NORTH SERVICE TRANSFORMER TO SCL VAULT. SCL COORDINATES REMOVAL OF FEEDER BETWEEN TRANSFORMER AND 5KV MAIN SWITCHGEAR. SCL REMOVES NORTH SERVICE TRANSFORMER.
155. REMOVE REMAINING SECTION OF EXISTING YARD AND CONSTRUCTION BARRIER.
156. SAWCUT NORTH DUCT BANK TO ENERGY PLANT AND REMOVE CONDUIT STUB-UPS. INSTALL MANHOLE N1 AND EXTEND DUCT BANK TO MANHOLE.
157. COMPLETE NEW YARD PERIMETER AND INTERIOR. COORDINATE WITH SCL TO REMOVE SEPARATION FENCE.
158. SCL INSTALLS NORTH TRANSFORMER.
159. SCL COORDINATES INSTALLATION OF NEW 15KV FEEDER BETWEEN TRANSFORMER AND NORTH EUSERC CABINET IN MAIN SWITCHGEAR ROOM.
160. SCL COORDINATES CONNECTION FROM EUSERC CABINET TO EXISTING NORTH METER ON ENERGY PLANT EXTERIOR WALL.
161. SCL INSTALLS 26KV SUPPLY FEEDER TO NORTH VISTA SWITCH, AND BETWEEN VISTA SWITCH AND NEW TRANSFORMER. SCL ENERGIZES AND TESTS.
162. VERIFY VOLTAGE AT NORTH MAIN BREAKER OF NEW MAIN SWITCHGEAR AND CLOSE MAIN.

CONNECT SUBSTATION B AND BUILDING 28/89 TO NEW MAIN SWITCHGEAR

163. REPLACE PADMOUNT 500KVA 4160-480Y/277V TRANSFORMER NORTH OF DATA CENTER BUILDING WITH 500KVA 13.8KV-480Y/277V PADMOUNT TRANSFORMER.
164. MEGGER TEST EXISTING 480V FEEDER INTO BUILDING 28/89, LEAVE FEEDER DISCONNECTED AT TRANSFORMER.
165. ROUTE SINGLE 15KV FEEDER IN ORIGINAL 5KV RACEWAY FROM PADMOUNT TRANSFORMER TO MANHOLE A1 OUTSIDE ELECTRICAL ROOM B.
166. INSTALL NORTH 15KV FEEDER FROM NEW MAIN SWITCHGEAR NORTH BREAKER TO ELECTRICAL ROOM B VIA ORIGINAL DUCT BANK AND MANHOLES A, A1.
167. INSTALL SOUTH 15KV FEEDER FROM NEW MAIN SWITCHGEAR SOUTH BREAKER TO MANHOLE A1 OUTSIDE ELECTRICAL ROOM B.
168. CONFIGURE EACH FEEDER IN MANHOLE A1 WITH DEAD BREAK ELBOWS. TERMINATE DATA CENTER FEEDER WITH A DEAD BREAK ELBOW.
169. CONNECT NORTH FEEDER TO THE UNUSED INSIDE BREAKER IN SUBSTATION B.
170. CONNECT THE DATA CENTER FEEDER TO SUBSTATION B NORTH FEEDER IN MANHOLE A1.
171. TEST AND ENERGIZE FEEDER AND VERIFY CORRECT OPERATION TO TRANSFORMER SECONDARY AND TO SUBSTATION B BREAKER. DE-ENERGIZE FEEDER AT MAIN SWITCHGEAR.
172. CONNECT 480V BUILDING SUPPLY FEEDER TO TRANSFORMER.
174. SWITCH CRITICAL LOAD IN BUILDING 28/89 TO GENERATOR, THEN DISCONNECT TEMPORARY SUPPLY FEEDER AND CONNECT PERMANENT FEEDER AT PANEL DP2.
175. ENERGIZE FEEDER AT MAIN SWITCHGEAR AND TEST OPERATION AT PANEL DP2, THEN SWITCH CRITICAL LOAD TO NORMAL.
175. SWITCH SUBSTATION B FROM TEMPORARY FEEDER TO NEW NORTH FEEDER.
176. REMOVE TEMPORARY PANEL DP2 FEEDER AND EQUIPMENT BACK TO BUILDING 1 SUBSTATION 1A.

CONNECT SUBSTATION C TO NEW MAIN SWITCHGEAR

177. INSTALL NORTH 15KV FEEDER FROM NEW MAIN SWITCHGEAR NORTH BREAKER TO ELECTRICAL ROOM C VIA ORIGINAL DUCT BANK AND MANHOLES C1 AND C2 OUTSIDE OF MAIN SWITCHGEAR ROOM AND ELECTRICAL ROOM C.
178. CONNECT NEW NORTH FEEDER TO NORTH BREAKER IN MAIN SWITCHGEAR. CONNECT OTHER END OF FEEDER TO THE UNUSED INSIDE BREAKER IN SUBSTATION C.
179. INSTALL SOUTH 15KV FEEDER FROM ELECTRICAL ROOM C TO MANHOLE C1 OUTSIDE MAIN SWITCHGEAR ROOM.
180. ENERGIZE AND TEST, THEN SWITCH SUBSTATION C FROM TEMPORARY FEEDER TO NEW NORTH FEEDER.

REMOVE TEMPORARY FEEDERS FROM SUBSTATION B AND SUBSTATION C

181. DISCONNECT FEEDER TEMP 15kV #1 FROM SUBSTATION B. CONNECT THE SOUTH PERMANENT FEEDER TO SAME BREAKER.
182. REMOVE FEEDER TEMP 15kV #1 FROM ELECTRICAL ROOM B TO ELECTRICAL ROOM C TAP BOX.
183. REMOVE FEEDER TEMP 15kV #2 FROM ELECTRICAL ROOM B TO TAP BOX IN TUNNEL.
184. DISCONNECT TEMPORARY FEEDER FROM SUBSTATION C. CONNECT THE SOUTH PERMANENT FEEDER TO SAME BREAKER.
185. REMOVE TEMPORARY FEEDER FROM ELECTRICAL ROOM C TO MANHOLE ET1.

INSTALL NEW SUBSTATION A SWITCHGEAR

186. INSTALL NEW SUBSTATION A WITH ONE TRANSFORMER AND DUPLEX BREAKER AT NORTH END. CONNECT INSIDE BREAKER TO NEW MAIN SWITCHGEAR NORTH HALF, WITH NEW OVERHEAD ROUTE (5KV ROUTE TO BE ABANDONED).
187. INSTALL BUSWAY BETWEEN NORTH SUB-MAIN BREAKER AND SOUTH SUB-MAIN BREAKER. PROVIDE CABLE TERMINATION BOX FOR SWITCHBOARD NDPA-1 FEEDER. EXTEND FEEDER TO CABLE BOX.
188. INSTALL TEMPORARY JUMPER BETWEEN LINE SIDE OF NORTH MAIN BREAKERS AND LINE SIDE OF SOUTH MAIN BREAKERS. ENERGIZE AND PERFORM FUNCTIONAL TEST OF SWITCHGEAR. REMOVE JUMPER.
189. FOR UNDER-SLAB FEEDERS, CONNECT PROTECTED FEEDER WIRES TO BREAKERS IN NEW SWITCHGEAR.
190. FOR ABOVE-SLAB FEEDERS, INSTALL NEW FEEDER WIRE AND CONDUIT BETWEEN SUBSTATION A AND SPLICE POINTS FOR FEEDERS SERVING EQUIPMENT OUTSIDE OF MAIN SWITCHGEAR ROOM. REMOVE TEMPORARY SPLICES; SPLICE PERMANENT SECTIONS TOGETHER FOR EACH FEEDER.
191. EXTEND STOWED METER WIRING TO NEW SUBSTATION B.
192. REMOVE TEMPORARY WIRING BACK TO TEMPORARY POWER CENTER IN REUSABLE CONDITION.
193. DISCONNECT FEEDER SUPPLYING TEMPORARY PANEL IN REACTOR ROOM, AT TEMPORARY POWER CENTER. STOW FOR RE-USE FROM TEMPORARY GENERATOR. RETAIN PANEL FOR RE-USE.
194. SHUT DOWN TD2 AND TEMP 15KV #2. REMOVE TEMPORARY CONNECTION TO SOUTH EUSERC CABINET IN MAIN SWITCHGEAR ROOM.
195. DISMANTLE TEMPORARY POWER CENTER. MOVE TRANSFORMER TO SUBSTATION A SOUTH END. MOVE PRIMARY BREAKER TO ELECTRICAL ROOM B.
196. DISMANTLE TEMPORARY TD1/TD2 AND MOVE DUPLEX BREAKER SECTION TO SUBSTATION A SOUTH END.

COMPLETE INSTALLATION AT NEW MAIN SWITCHGEAR

197. COORDINATE WITH SCL TO DISCONNECT THE SOUTH EUSERC CABINET FROM THE SOUTH SERVICE FEEDER AND THE SOUTH UTILITY METER.
198. REMOVE EUSERC CABINET AND TRANSITION SECTION FROM PAD.
199. INSTALL SOUTH SWITCHGEAR SECTIONS IN FINAL LOCATION NEXT TO SOUTH TIE BREAKER.
200. REPOSITION EUSERC CABINET AND TRANSITION SECTION IN FINAL LOCATION AT END OF COMPLETED MAIN SWITCHGEAR.
201. COORDINATE WITH SCL TO RETERMINATE SOUTH FEEDER AND SOUTH UTILITY METER CONNECTIONS TO EUSERC CABINET.
202. SCL ENERGIZES AND TESTS. VERIFY VOLTAGE AT SOUTH MAIN BREAKER OF NEW MAIN SWITCHGEAR AND CLOSE MAIN.

COMPLETE SOUTH FEEDERS AT NEW MAIN SWITCHGEAR

203. INSTALL 15KV FEEDER FROM SOUTH SWITCHGEAR BREAKER TO MANHOLE A1 TO COMPLETE SOUTH FEEDER TO SUBSTATION B.
204. INSTALL 15KV FEEDER FROM SOUTH SWITCHGEAR BREAKER TO MANHOLE C1 TO COMPLETE SOUTH FEEDER TO SUBSTATION C.
205. INSTALL 15KV FEEDER FROM SOUTH SWITCHGEAR BREAKER TO SOUTH INSIDE BREAKER AT SUBSTATION A.
206. INSTALL SUBSTATION A CROSSOVER FEEDER FROM SOUTH INSIDE BREAKER TO NORTH OUTSIDE BREAKER.
207. WITH VOLTAGE AT BOTH SUBSTATION B MAIN BREAKERS, OPEN TIE BREAKER AND CLOSE MAINS.
208. WITH VOLTAGE AT BOTH SUBSTATION C MAIN BREAKERS, OPEN TIE BREAKER AND CLOSE MAINS.
209. TRANSFER SUBSTATION A LOAD TO SOUTH FEEDER FROM NEW MAIN SWITCHGEAR SOUTH HALF.
210. SHUT DOWN SUBSTATION A NORTH FEEDER, THEN INSTALL CROSSOVER FEEDER FROM NORTH INSIDE BREAKER TO SOUTH OUTSIDE BREAKER.
211. ENERGIZE SUBSTATION A SOUTH FEEDER. OPEN TIE BREAKER AND VERIFY BOTH MAIN BREAKERS ARE CLOSED.

END OF NORMAL POWER SYSTEM UPGRADE

SEE SHEET ES005 FOR ESSENTIAL POWER SYSTEM UPGRADE.

GENERAL NOTES:

THE FOLLOWING SEQUENCE PRESENTS SUGGESTED STEPS FOR REPLACING THE ELECTRICAL SWITCHGEAR WHILE MAINTAINING SERVICE TO THE MEDICAL CENTER. THE EXACT SEQUENCE SHALL BE AS DETERMINED BY THE CONTRACTOR. REFER TO SPECIFICATIONS SECTIONS 01 32 16.13, NETWORK ANALYSIS SCHEDULES – MAJOR PROJECTS, FOR THE PROJECT SCHEDULE DEVELOPMENT REQUIREMENTS.

BID OPTION 2 - UPGRADE ESSENTIAL POWER

ESSENTIAL 'B' 15KV BREAKER SECTION IS USED AHEAD OF TRANSFORMER IN TEMPORARY 'A' POWER ASSEMBLY. SEPARATE TEMPORARY 15KV SWITCH IS NOT USED.

BID OPTION 5 - REPLACE TRANSFER SWITCHES

TRANSFER SWITCH REPLACEMENT TO BE COORDINATED WITH SHUTDOWN OF EXISTING TRANSFER SWITCH. SEE INDIVIDUAL UNIT SUBSTATION OR ESSENTIAL SWITCHGEAR REPLACEMENT SECTIONS.

AMENDMENT DRAWING

SUPERSEDES ES004

Revisions	Date
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REVISION 1	04-01-16

CONSULTANTS:

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SAZAN # 269-1507

Drawing Title	SEQUENCE OF CONSTRUCTION NORMAL POWER SYSTEM UPGRADE
Approved Project Director	VAPAHCS PLANNING AND ENGINEERING
Project Title	VA PUGET SOUND HEALTH CARE SYSTEM UPGRADE SEATTLE ELECTRICAL DISTRIBUTION FROM 5kV TO 15kV
Location	1660 South Columbian Way, Seattle, WA 98108
Date	02-25-2016
Checked	K.ANDERSON
Drawn	A.WOOLF
Project Number	663-15-102
Building Number	100
Drawing Number	ES004R
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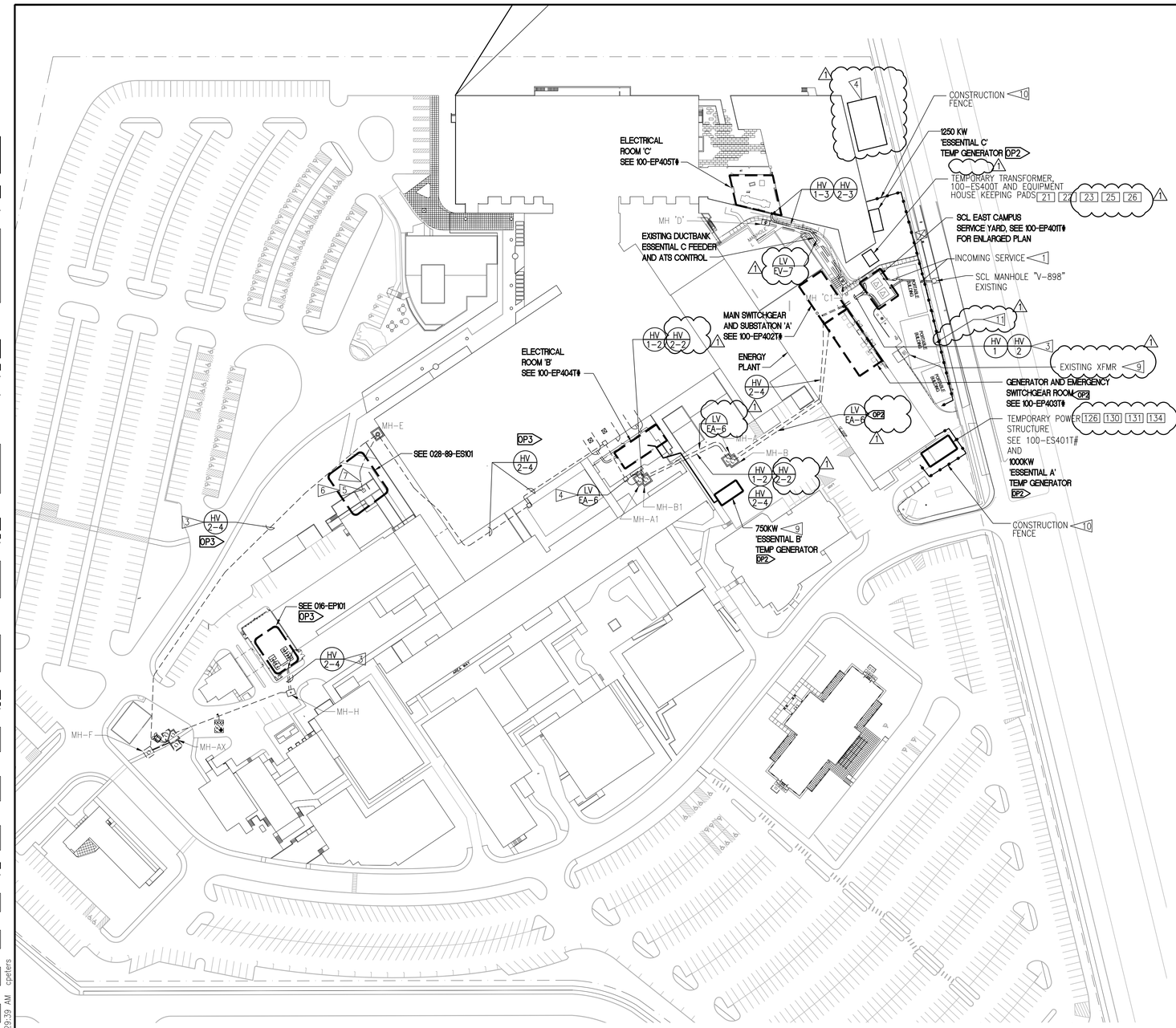
Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231



GENERAL NOTES:

1. REFER TO ARCHITECTURAL, CIVIL, STRUCTURAL, AND MECHANICAL DRAWINGS FOR RELATED WORK NOT SHOWN ON THIS DRAWING.
2. FIELD VERIFY EXISTING CONDITIONS PRIOR TO COMMENCING WORK.
3. REFER TO ENLARGED ELECTRICAL ROOMS PLAN TEMPORARIES DRAWINGS FOR SEQUENCE OF CONSTRUCTIONS.
4. THE EXISTING SCL EAST CAMPUS SERVICE YARD SHALL BE ENLARGED TO IN STAGES TO ACCOMMODATE THE SERVICE UPGRADE FROM 5KV TO 15KV.
5. REFER TO ES800 AND ES801 FOR FEEDER SCHEDULE.

CONSTRUCTION NOTES:

1. COORDINATE REMOVAL OF 26KV FEEDER WITH SEATTLE CITY LIGHT (SCL). 100
2. SCL SUBSTATION. REMOVAL AND NEW INSTALLATION SHALL BE PER SCL REQUIREMENTS. COORDINATE ALL WORK WITH SCL.
3. REMOVE EXISTING FEEDERS. 101
4. RELOCATED PORTABLE BUILDING.
5. DISCONNECT AND REMOVE POWER CONNECTION TO TRANSFORMER.
6. REPLACE 500KVA TRANSFORMER (DATA CENTER AND TELEPHONE BUILDING ON GENERATOR).
7. REPLACE 5KV FEEDER WITH 15KV FEEDER BACK TO ENERGY PLANT.
8. REPLACE EXISTING METAL CABLE RACKS WITH HEAVY DUTY NON-METALLIC CABLE RACKS.
9. EXISTING TRANSFORMER TO REMAIN IN PLACE.
10. PROVIDE CONSTRUCTION FENCE PER SPECIFICATION REQUIREMENTS.
11. DISCONNECT POWER, COMMUNICATIONS TO PORTABLE BUILDING AND RELOCATE NORTH. SEE FLAG NOTE 4 FOR NEW LOCATION.

NOTES:

TASK IDENTIFICATION – SEE SEQUENCE OF CONSTRUCTION ON SHEET ES003, ES004 AND ES005

21 22 23 25 26 100 101 126 130 131 134 1

SITE PLAN

SCALE: 1"= 60'-0"

0 15 30 60 120 180

1"=60'-0" feet

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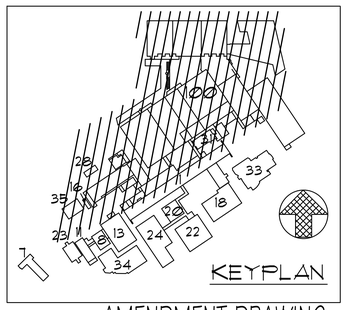

AMENDMENT DRAWING

SUPERSEDES ES101TO

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REVISION 1	04-01-16
Revisions:	Date

CONSULTANTS:

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SAZAN # 269-1507

Drawing Title: ELELCTRICAL SITE PLAN - TEMPORARY #0

Approved Project Director: VAPAHCS PLANNING AND ENGINEERING

Project Title: VA PUGET SOUND HEALTH CARE SYSTEM UPGRADE SEATTLE ELECTRICAL DISTRIBUTION FROM 5kV TO 15kV

Location: 1660 South Columbian Way, Seattle, WA 98108

Date: 02-25-2016 | Checked: A. WOOLF | Drawn: S. LIM

Project Number: 663-15-102

Building Number: SITE

Drawing Number: ES101TOR

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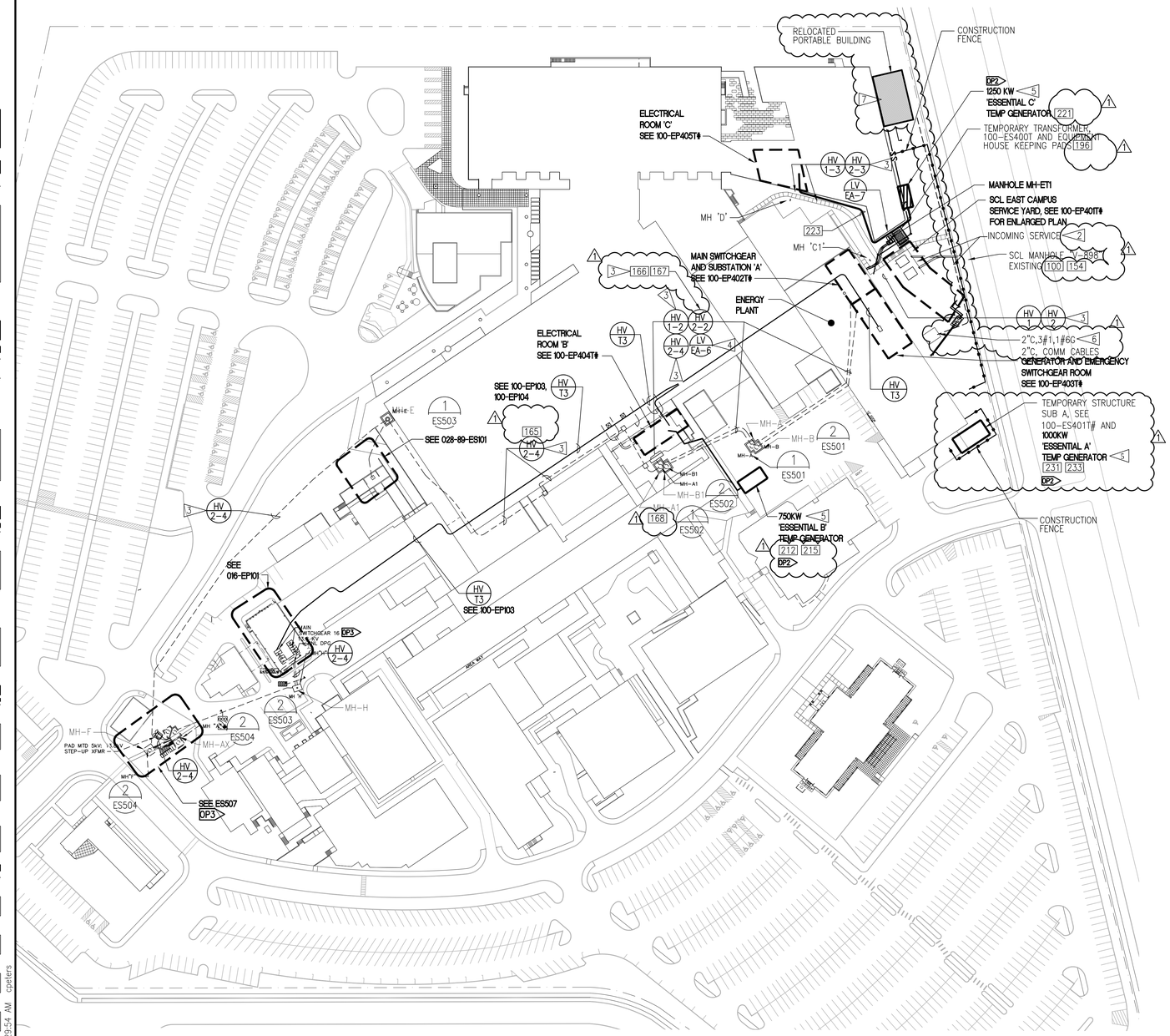
Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231



GENERAL NOTES:

1. REFER TO ARCHITECTURAL, CIVIL, STRUCTURAL, AND MECHANICAL DRAWINGS FOR RELATED WORK NOT SHOWN ON THIS DRAWING.
2. FIELD VERIFY EXISTING CONDITIONS PRIOR TO COMMENCING WORK.
3. REFER TO ENLARGED ELECTRICAL ROOMS PLAN TEMPORARIES DRAWINGS FOR SEQUENCE OF CONSTRUCTIONS.
4. THE EXISTING SCL EAST CAMPUS SERVICE YARD SHALL BE ENLARGED TO IN STAGES TO ACCOMMODATE THE SERVICE UPGRADE FROM 5KV TO 15KV.
5. REFER TO ES800 AND ES801 FOR FEEDER SCHEDULE.

CONSTRUCTION NOTES:

1. COORDINATE REMOVAL OF 26KV FEEDER WITH SEATTLE CITY LIGHT (SCL).
2. SCL SUBSTATION. REMOVAL AND NEW INSTALLATION SHALL BE PER SCL REQUIREMENTS. COORDINATE ALL WORK WITH SCL.
3. REPLACE 5KV FEEDERS WITH 15KV FEEDER. REFER TO 100-ES101 FOR REQUIREMENTS.
4. REPLACE 480V FEEDERS WITH 15KV FEEDERS.
5. PROPOSED TEMP GENERATOR LOCATION.
6. INTERCEPT EXISTING FEEDER AND COMMUNICATION CABLES AND EXTEND TO RELOCATED PORTABLE BUILDING.
7. RELOCATED PORTABLE BUILDING SHALL BE FULLY OPERATIONAL PER EXISTING CONDITION UPON PROJECT COMPLETION.

NOTES:

TASK IDENTIFICATION – SEE SEQUENCE OF CONSTRUCTION ON SHEET ES003, ES004 AND ES005.

196 212 215 221 221 223 233

SITE PLAN

SCALE: 1" = 60'-0"

0 15 30 60 120 180

1"=60'-0" feet

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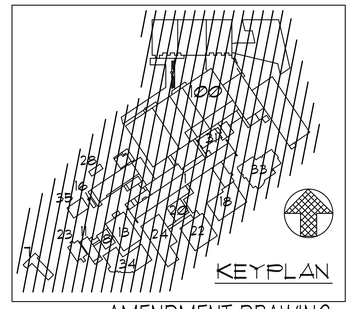

AMENDMENT DRAWING

SUPERSEDES ES101T1

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REVISION 1	04-01-16
Revisions:	Date

CONSULTANTS:

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SAZAN # 269-1507

Drawing Title: ELELCTRICAL SITE PLAN - TEMPORARY #1

Approved: Project Director

VAPAHCS PLANNING AND ENGINEERING

Project Title: VA PUGET SOUND HEALTH CARE SYSTEM UPGRADE SEATTLE ELECTRICAL DISTRIBUTION FROM 5kV TO 15kV

Location: 1660 South Columbian Way, Seattle, WA 98108

Date: 02-25-2016 | Checked: A. WOOLF | Drawn: S. LIM

Project Number: 663-15-102

Building Number: SITE

Drawing Number: ES101T1R

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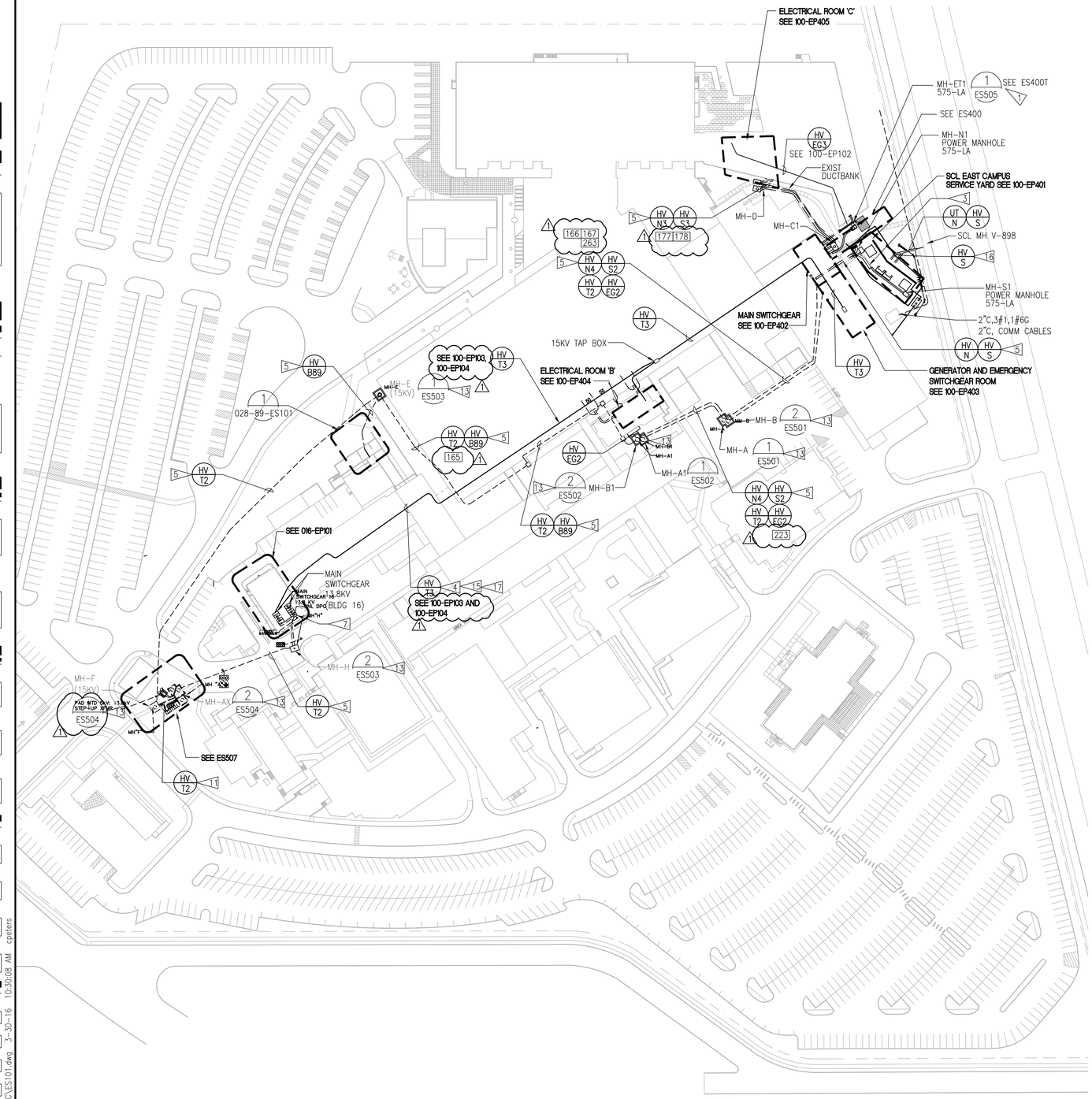
Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231



SITE PLAN

SCALE: 1"= 60'-0"

0 15 30 60 120 180

1"=60'-0" feet

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GENERAL NOTES:

1. REFER TO ARCHITECTURAL, CIVIL, STRUCTURAL, AND MECHANICAL DRAWINGS FOR RELATED WORK NOT SHOWN ON THIS DRAWING.
2. FIELD VERIFY EXISTING CONDITIONS PRIOR TO COMMENCING WORK.
3. REFER TO ENLARGED ELECTRICAL ROOMS PLAN TEMPORARIES DRAWINGS FOR SEQUENCE OF CONSTRUCTIONS.
4. THE EXISTING SCL EAST CAMPUS SERVICE YARD SHALL BE ENLARGED TO IN STAGES TO ACCOMMODATE THE SERVICE UPGRADE FROM 5KV TO 15KV.
5. REFER TO ES800 AND ES801 FOR FEEDER SCHEDULE.

CONSTRUCTION NOTES:

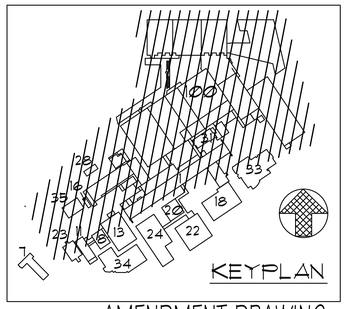
1. REFER TO ES400T FOR INSTALLATION REQUIREMENTS.
2. NOT USED.
3. INTERCEPT EXISTING CONDUITS AND EXTEND TO MANHOLE AS SHOWN.
4. PROVIDE FEEDER AS SHOWN.
5. PROVIDE NEW CABLES IN EXISTING CONDUIT.
6. NOT USED.
7. MODIFYING EXISTING SWITCHGEAR FOR INTER-TIE.
8. NOT USED.
9. NOT USED.
10. NOT USED.
11. NOT USED.
12. NOT USED.
13. PROVIDE HEAVY DUTY UNDERGROUND NON-METALLIC CABLE RACKS. PROVIDE SEPARABLE CONNECTORS. FIELD VERIFY EXISTING CONDITIONS PRIOR TO INSTALLATION.
14. NOT USED.
15. SEAL ALL WALL PENETRATION, SEAL SHALL MATCH EXISTING WALL RATING.
16. PROVIDE CONDUITS PER SCL REQUIREMENTS.
17. FIELD VERIFY EXACT FEEDER ROUTING PRIOR TO INSTALLATION.

REFERENCE DRAWING:

NOTES:

TASK IDENTIFICATION – SEE SEQUENCE OF CONSTRUCTION ON SHEET ES003, ES004 AND ES005

165 166 167 177 178 263



AMENDMENT DRAWING

SUPERSEDES ES101

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REVISION 1	04-01-16
Revisions:	Date

CONSULTANTS:

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SAZAN # 269-1507

Drawing Title: ELECTRICAL SITE PLAN

Approved Project Director: VAPAHCS PLANNING AND ENGINEERING

Project Title: VA PUGET SOUND HEALTH CARE SYSTEM UPGRADE SEATTLE ELECTRICAL DISTRIBUTION FROM 5kV TO 15kV

Location: 1660 South Columbian Way, Seattle, WA 98108

Date: 02-25-2016 | Checked: A. WOOLF | Drawn: S. LIM

Project Number: 663-15-102

Building Number: 100

Drawing Number: ES101R

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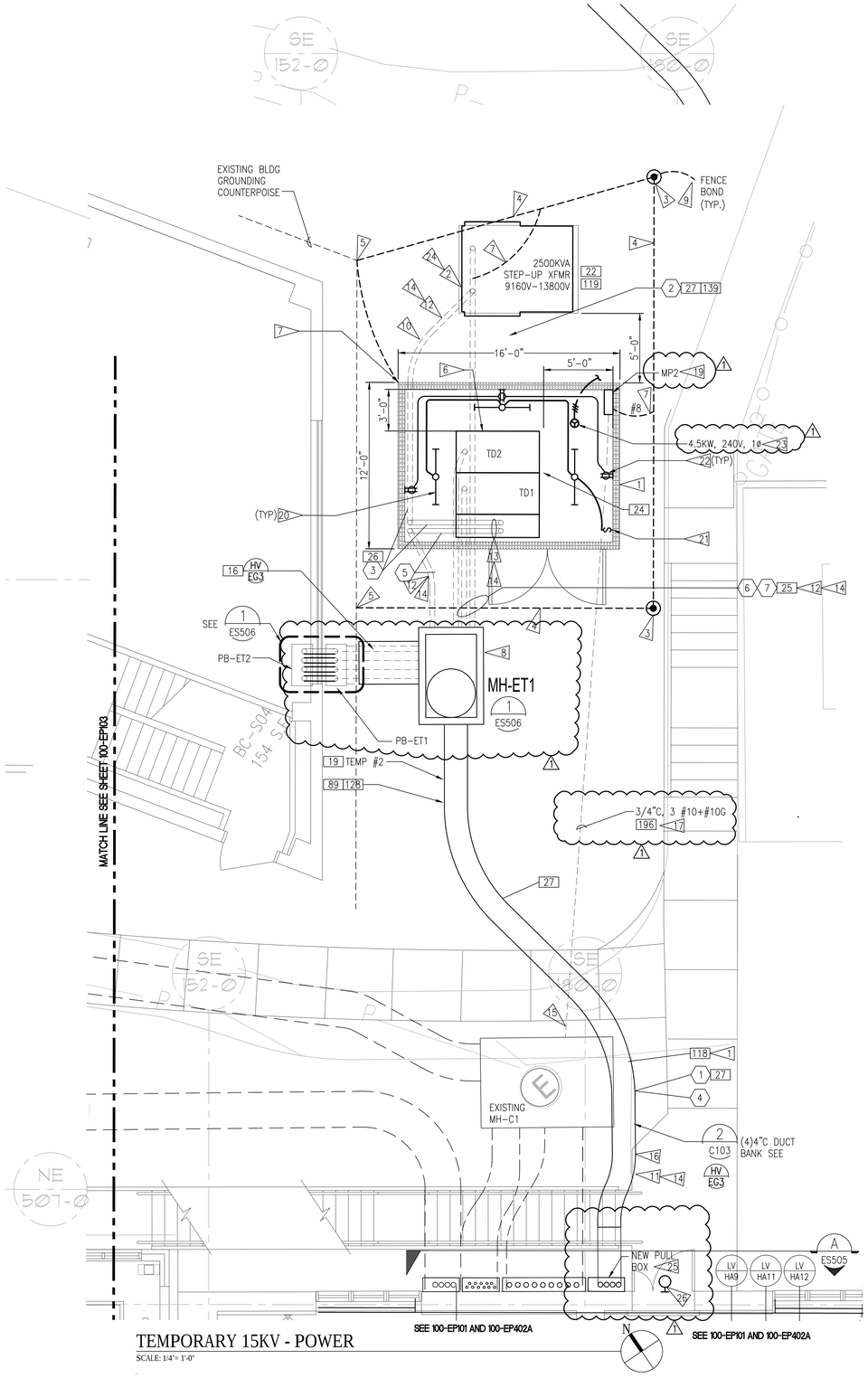
Office of Construction and Facilities Management

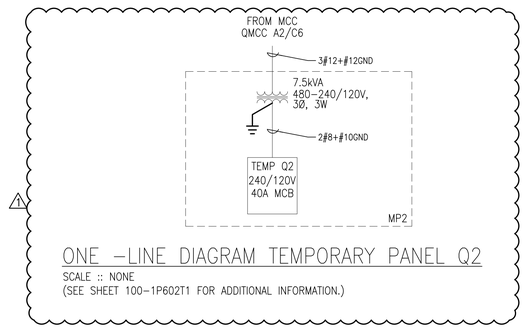
Department of Veterans Affairs

VA FORM 08-6231



TEMPORARY 15KV - POWER

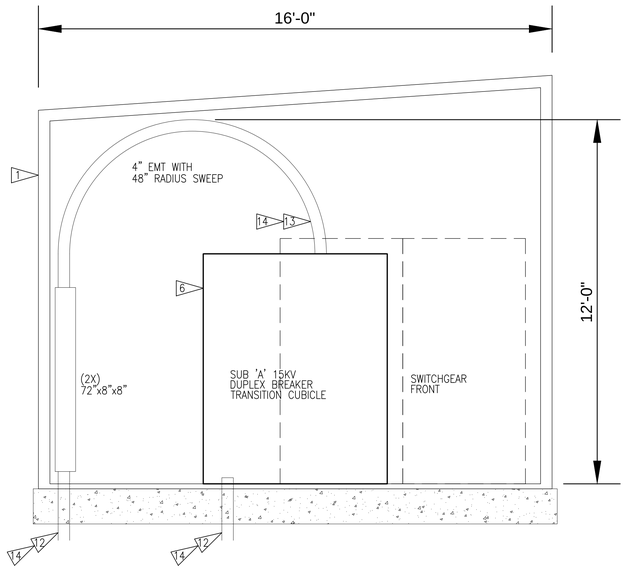
SCALE: 1/4"= 1'-0"



ONE -LINE DIAGRAM TEMPORARY PANEL Q2

SCALE :: NONE

(SEE SHEET 100-1P602T1 FOR ADDITIONAL INFORMATION.)



TEMPORARY FEEDER ELEVATION

0 1 2 4 8 12

1/4"=1'-0" feet

GENERAL NOTES:

1. REFER TO ARCHITECTURAL, CIVIL, STRUCTURAL, AND MECHANICAL DRAWINGS FOR RELATED WORK NOT SHOWN ON THIS DRAWING.
2. FIELD VERIFY EXISTING CONDITIONS PRIOR TO COMMENCING WORK.
3. REFER TO ENLARGED ELECTRICAL ROOMS PLAN TEMPORARIES DRAWINGS FOR SEQUENCE OF CONSTRUCTIONS.
4. THE EXISTING SCL EAST CAMPUS SERVICE YARD SHALL BE ENLARGED TO IN STAGES TO ACCOMMODATE THE SERVICE UPGRADE FROM 5KV TO 15KV.
5. REFER TO ES800 AND ES801 FOR FEEDER SCHEDULES.

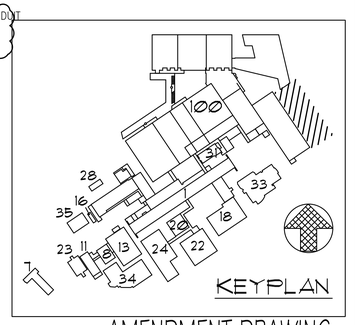
NOTES:

TASK IDENTIFICATION – SEE SEQUENCE OF CONSTRUCTION ON SHEETS ES003, ES004 AND ES005.

16 19 22 24 26 27 89 118 128 139 196

CONSTRUCTION NOTES:

1. PROVIDE TEMPORARY WEATHERTIGHT CONTRACTOR DESIGNED STRUCTURE WITH POWER CENTER, LIGHTING, RECEPTACLES AND UNIT HEATERS.
2. INSTALL 2500KVA 4160V-13,800V STEP-UP TRANSFORMER ON TRANSFORMER PAD. REFER TO CIVIL AND STRUCTURAL FOR PAD INSTALLATION REQUIREMENTS.
3. INSTALL GROUND ROD AT PERIMETER LOCATION.
4. INSTALL #1/0 BARE COPPER WIRE AS SHOWN AND PER NEC 250.53.
5. BOND NEW GROUND WIRE TO EXISTING BUILDING COUNTERPOISE AT THIS LOCATION.
6. USE NEW SUB "A" RIGHT-END 15KV DUPLEX BREAKER. COVER TRANSITION SECTION OPENING WITH INSULATION BARRIER.
7. BOND EQUIPMENT TO GROUNDING WIRE SIZE AS SHOWN.
8. PROVIDE 575-LA WITH 24" RISER. PROVIDE SLIP RESISTANCE COVER. REFER TO C103 FOR INSTALLATION REQUIREMENTS. BOND MANHOLE ET1 GROUND SYSTEM TO GROUND RING USING #1/0 BARE COPPER WIRE UNLESS OTHERWISE SPECIFIED.
9. BOND METAL CONSTRUCTION FENCE OR FENCE COMPONENTS TO GROUND SYSTEM WITH MINIMUM #2 BARE COPPER WIRE.
10. INSTALL PERMANENT CABLE IN DUCT BANK PER FEEDER SCHEDULE. AFTER TEMPORARY SERVICE, GROUND FEEDER CONDUCTOR IN MANHOLE ET1.
11. USE PERMANENT RACEWAY FOR TEMPORARY FEEDER PER FEEDER SCHEDULE.
12. PROVIDE PVC-80 DUCT SIZED PER FEEDER SCHEDULE FOR TEMPORARY FEEDER. INSTALL ALL TEMPORARY DUCTS AT SAME TIME.
13. PROVIDE EMT DUCT SIZED PER FEEDER SCHEDULE FOR TEMPORARY FEEDER INSIDE WEATHER TIGHT STRUCTURE. WHERE UNDERGROUND DUCT ENTERS STRUCTURE PROVIDE VERTICAL 72"X8"X8" PULL BOX.
14. INSTALL FEEDER CABLE PER FEEDER SCHEDULE AND SEQUENCE OF CONSTRUCTION.
15. PROVIDE 3#10+#10G IN SPARE 3 1/2" CONDUIT FOR PANEL TEMP Q2.
16. REMOVE TEMPORARY FEEDER CABLE WHEN 2500KVA TRANSFORMER IS DISCONNECTED.
17. REMOVE FEEDER CONDUCTOR BACK TO MCC WHEN STRUCTURE IS REMOVED. CAP CONDUIT.
18. PROVIDE FEEDER AS SHOWN.
19. PROVIDE POWER DISTRIBUTION EQUIPMENT FOR TEMPORARY POWER, LIGHTING, AND SPACE HEATER; SEALED MINI-POWER OR EQUAL.
20. PROVIDE SURFACE MOUNT INDUSTRIAL STRIP FLUORESCENT FIXTURE, (2) T8 LAMPS, ELECTRONIC BALLAST. PROVIDE MC CABLE TO SOURCE.
21. PROVIDE SURFACE MOUNT 20A, SINGLE-POLE SWITCH WITH STEEL COVER PLATE. INSTALL AT DOOR ENTRY. PROVIDE CONNECTION USING MC CABLE TO LIGHT FIXTURE.
22. PROVIDE SURFACE MOUNT 20A, DUPLEX RECEPTACLE WITH STEEL COVER PLATE. PROVIDE CONNECTION USING MC CABLE TO SOURCE.
23. PROVIDE CONNECTION TO UNIT HEATER, AS SHOWN. PROVIDE MC CABLING TO SOURCE.
24. AFTER TRANSFORMER IS DISCONNECTED, RETURN TO ORIGINAL WEST CAMPUS EQUIPMENT PAD.
25. PROVIDE STAINLESS STEEL PULLBOX WITH LOCKABLE DOOR. 36"X60"X12". RELOCATE LIGHT FIXTURE ABOVE DOOR.
26. RELOCATED LIGHTING FIXTURE. LIGHT FIXTURE SHALL BE FULL OPERATIONAL PER EXISTING CONDITION UPON PROJECT COMPLETION.



AMENDMENT DRAWING

SUPERSEDES ES400T

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REVISION 1	04-01-16
Revisions:	Date

CONSULTANTS:

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Fax 206.267.1701
SAZAN # 269-1507

Drawing Title	TEMPORARY 15KV SUPPLY PLAN - POWER
Project Title	VA PUGET SOUND HEALTH CARE SYSTEM UPGRADE SEATTLE ELECTRICAL DISTRIBUTION FROM 5kV TO 15kV
Project Number	663-15-102
Building Number	100
Approved Project Director	VAPAHCS PLANNING AND ENGINEERING
Location	1660 South Columbian Way, Seattle, WA 98108
Drawing Number	ES400TR
Date	02-25-2016
Checked	A. WOOLF
Drawn	S. LIM
Dwg. -- of --	

Office of Construction and Facilities Management

Department of Veterans Affairs

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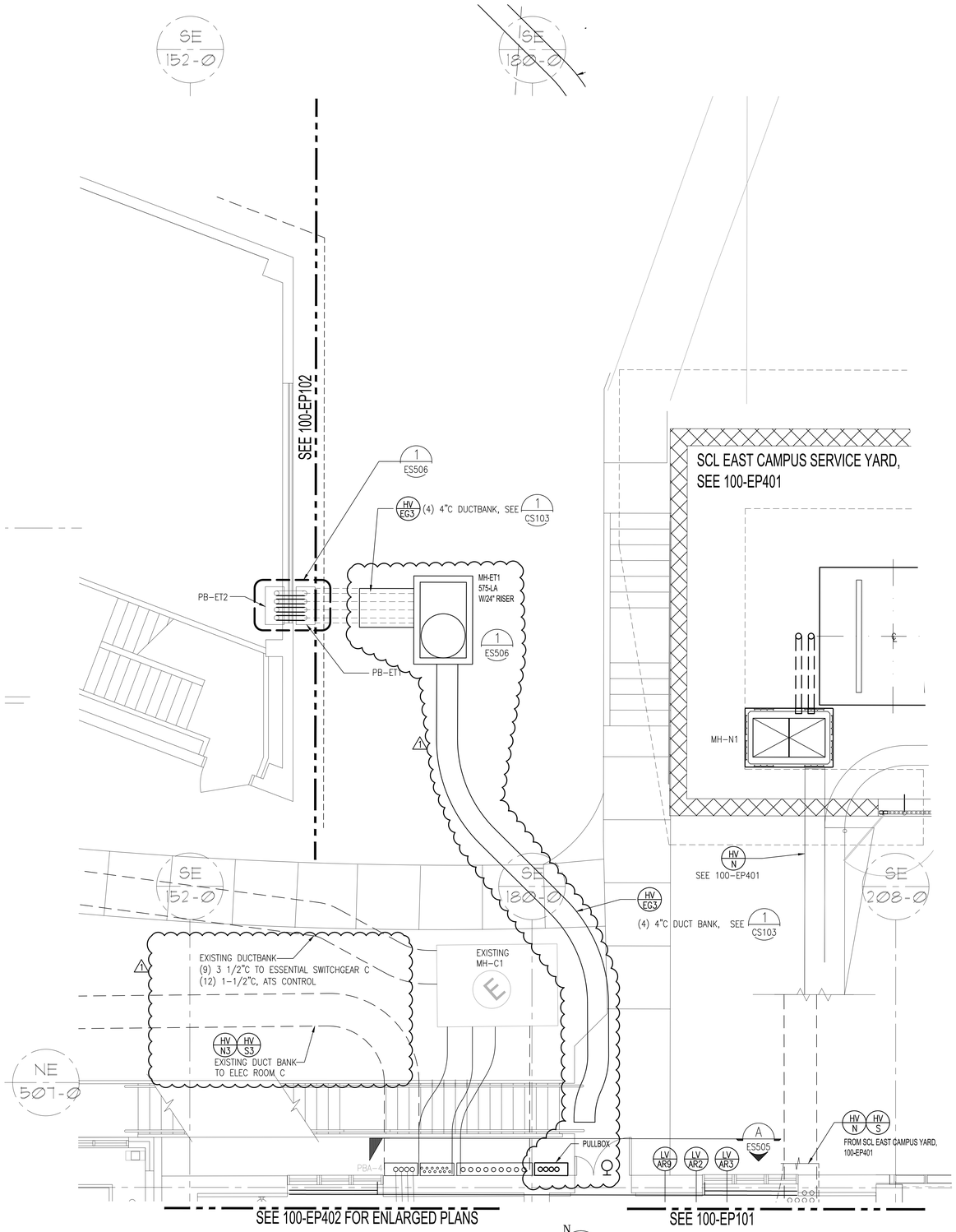
VA FORM 08-6231



15KV - POWER

SCALE: 1/4"= 1'-0"

0 1 2 4 8 12

1/4"=1'-0" feet

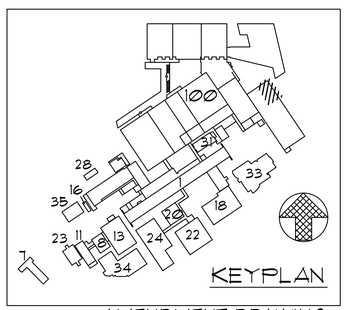
GENERAL NOTES:

1. REFER TO ARCHITECTURAL, CIVIL, STRUCTURAL, AND MECHANICAL DRAWINGS FOR RELATED WORK NOT SHOWN ON THIS DRAWING.
2. FIELD VERIFY EXISTING CONDITIONS PRIOR TO COMMENCING WORK.
3. REFER TO ENLARGED ELECTRICAL ROOMS PLAN TEMPORARIES DRAWINGS FOR SEQUENCE OF CONSTRUCTIONS.
4. THE EXISTING SCL EAST CAMPUS SERVICE YARD SHALL BE ENLARGED TO IN STAGES TO ACCOMMODATE THE SERVICE UPGRADE FROM 5KV TO 15KV.
5. REFER TO ES800 AND ES801 FOR FEEDER SCHEDULE.

NOTES:

[###] TASK IDENTIFICATION – SEE SEQUENCE OF CONSTRUCTION ON SHEETS ES003, ES004 AND ES005.

CONSTRUCTION NOTES:



AMENDMENT DRAWING

SUPERSEDES ES400

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REVISION 1	04-01-16
Revisions	Date

CONSULTANTS:

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SAZAN # 269-1507

Drawing Title: 15KV PLAN - POWER

Approved Project Director: - - VAPAHCS PLANNING AND ENGINEERING

Project Title: VA PUGET SOUND HEALTH CARE SYSTEM UPGRADE SEATTLE ELECTRICAL DISTRIBUTION FROM 5kV TO 15kV

Location: 1660 South Columbian Way, Seattle, WA 98108

Date: 02-25-2016 | Checked: A. WOOLF | Drawn: S. LIM

Project Number: 663-15-102

Building Number: 100

Drawing Number: ES400R

Dwg -- of --

Office of Construction and Facilities Management

Department of Veterans Affairs

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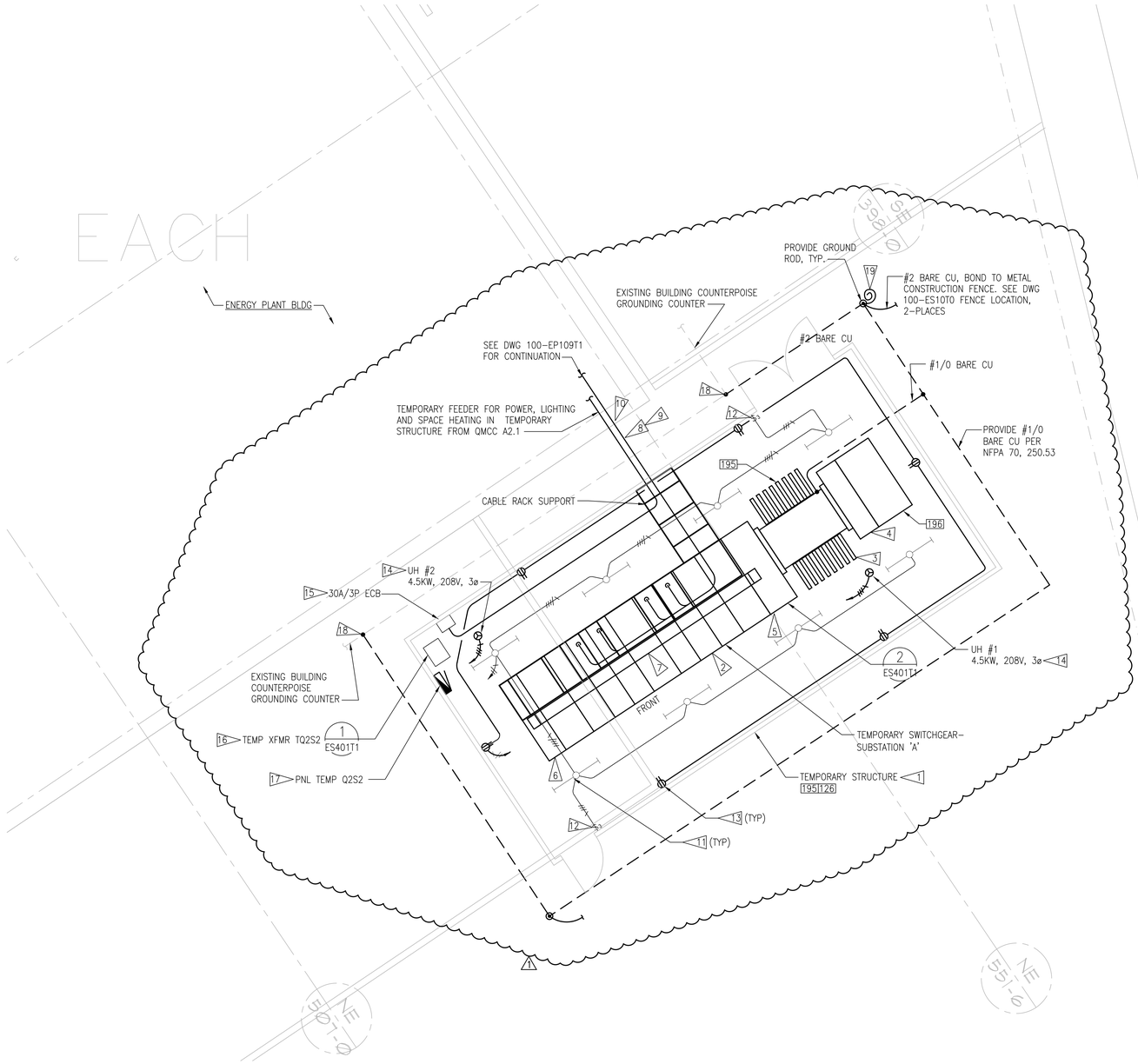
VA FORM 08-6231



TEMPORARY SUBSTATION "A" - POWER

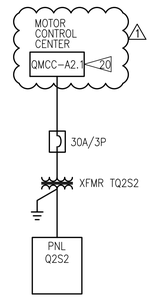
SCALE: 1/4"= 1'-0"

0 1 2 4 8 12
1/4"=1'-0" feet

N

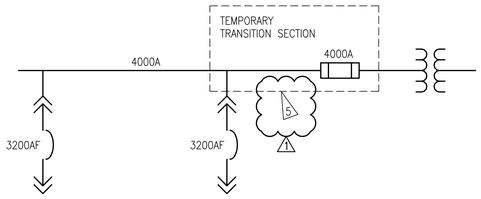
BID OPTION 2 - UPGRADE ESSENTIAL POWER

ESSENTIAL 'B' 15KV BREAKER SECTION IS USED AHEAD OF TRANSFORMER IN TEMPORARY 'A' POWER ASSEMBLY. SEPARATE TEMPORARY 15KV SWITCH IS NOT USED.



1 ES401T1 TEMPORARY SUBSTATION A - ONE LINE DIAGRAM

SCALE: NONE
(SEE SHT EP602T1)



2 ES401T1 TEMPORARY TRANSITION SECTION DETAIL

SCALE: NONE

GENERAL NOTES:

1. REFER TO ARCHITECTURAL, CIVIL, STRUCTURAL, AND MECHANICAL DRAWINGS FOR RELATED WORK NOT SHOWN ON THIS DRAWING.
2. FIELD VERIFY EXISTING CONDITIONS PRIOR TO COMMENCING WORK.
3. REFER TO ENLARGED ELECTRICAL ROOMS PLAN TEMPORARIES DRAWINGS FOR SEQUENCE OF CONSTRUCTIONS.
4. THE EXISTING SCL EAST CAMPUS SERVICE YARD SHALL BE ENLARGED TO IN STAGES TO ACCOMMODATE THE SERVICE UPGRADE FROM 5KV TO 15KV.
5. REFER TO ES800 AND ES801 FOR FEEDER SCHEDULE.

1

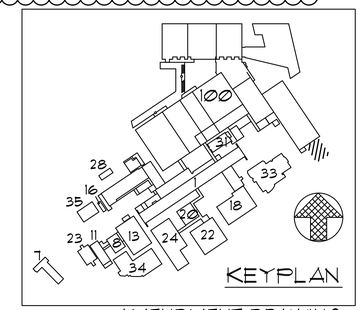
NOTES:

TASK IDENTIFICATION - SEE SEQUENCE OF CONSTRUCTION ON SHEETS ES003, ES004 AND ES005.

126 195 196

CONSTRUCTION NOTES:

1. PROVIDE TEMPORARY WEATHERTIGHT CONTRACTOR DESIGNED STRUCTURE WITH POWER CENTER, LIGHTING, RECEPTACLES AND UNIT HEATERS.
2. RE-USE SUBSTATION "C" 480V SWITCHGEAR. SEE SHEET 100-EP405T0 FOR FRONT ELEVATION.
3. USE NEW SUB "A" RIGHT-END 2500KVA TRANSFORMER.
4. PROVIDE TEMPORARY 15kV FUSED LOADBREAK SWITCH.
5. REPLACE TEMPORARY TRANSITION SECTION WITH NEW TRANSITION SECTION EQUIPPED WITH 4000A BUS AND 4000A FUSES CONNECTED TO TRANSFORMER SECONDARY.
6. MODIFY TRANSITION SECTION FOR TOP FEED WITH CLOSED END PLATE.
7. PROVIDE 4000A BUSWAY OR APPROVED EQUAL CONNECTING SWITCHGEAR LINE-IN TERMINALS TOGETHER.
8. PROVIDE TYPE MC CABLES PER FEEDER SCHEDULE. SEE SHEETS 100-EP602T1 & T2.
9. PROVIDE CABLE SUPPORT AS REQUIRED.
10. SEE DWG 100-EP109T1 FOR WALL OPENING LOCATION FOR CONDUIT ROUTING.
11. PROVIDE SURFACE MOUNT INDUSTRIAL STRIP FLUORESCENT FIXTURE, (2) T8 LAMPS, ELECTRONIC BALLAST. PROVIDE MC CABLE TO SOURCE.
12. PROVIDE SURFACE MOUNT 20A, 3-WAY SWITCH WITH STEEL COVERPLATE. INSTALL AT DOOR ENTRY. PROVIDE CONNECTION USING MC CABLE TO LIGHT FIXTURE.
13. PROVIDE SURFACE MOUNT 20A, DUPLEX RECEPTACLE WITH STEEL COVERPLATE. PROVIDE CONNECTION USING MC CABLE TO SOURCE.
14. PROVIDE CONNECTION TO UNIT HEATER, AS SHOWN. PROVIDE MC CABLING TO SOURCE.
15. PROVIDE SERVICE RATED ENCLOSED CIRCUIT BREAKER.
16. PROVIDE 480V:208Y/120V, 3ø, 4W 15kVA TRANSFORMER.
17. PROVIDE SURFACE MOUNT 208Y/120V, 3ø, 4W PANEL WITH 60A-3P MAIN CIRCUIT BREAKER. PROVIDE (3) 20A-1P AND (2) 20A-3P CIRCUIT BREAKERS FOR LTG, CONVENIENCE RECEPTACLES AND HEATING LOADS.
18. FIELD VERIFY LOCATION OF EXISTING BUILDING COUNTERPOISE GROUNDING CONDUCTOR. BOND NEW GROUNDING CONDUCTOR.
19. PROVIDE #3/0 CU, 20' LENGTH COILED FOR FUTURE TEMPORARY GENERATOR GROUNDING ELECTRODE CONNECTION.
20. REFER TO 100-EP801 FOR MOTOR CONTROL CENTER SCHEDULES.



AMENDMENT DRAWING

SUPERSEDES ES101T1

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REVISION 1	04-01-16
Revisions:	Date

CONSULTANTS:

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SAZAN # 269-1507

Drawing Title: TEMPORARY SUBSTATION "A" PLAN - POWER

Approved Project Director: - - VAPAHCS PLANNING AND ENGINEERING

Project Title: VA PUGET SOUND HEALTH CARE SYSTEM UPGRADE SEATTLE ELECTRICAL DISTRIBUTION FROM 5kV TO 15kV

Location: 1660 South Columbian Way, Seattle, WA 98108

Date: 02-25-2016 | Checked: A. WOOLF | Drawn: S. LIM

Project Number: 663-15-102

Building Number: 100

Drawing Number: ES401T1R

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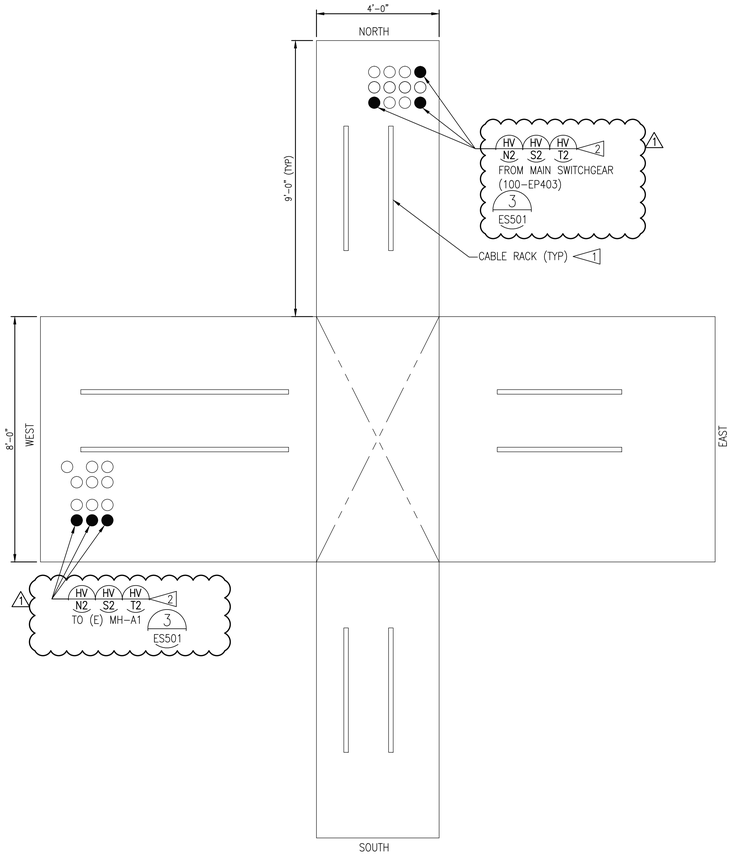
Office of Construction and Facilities Management

Department of Veterans Affairs

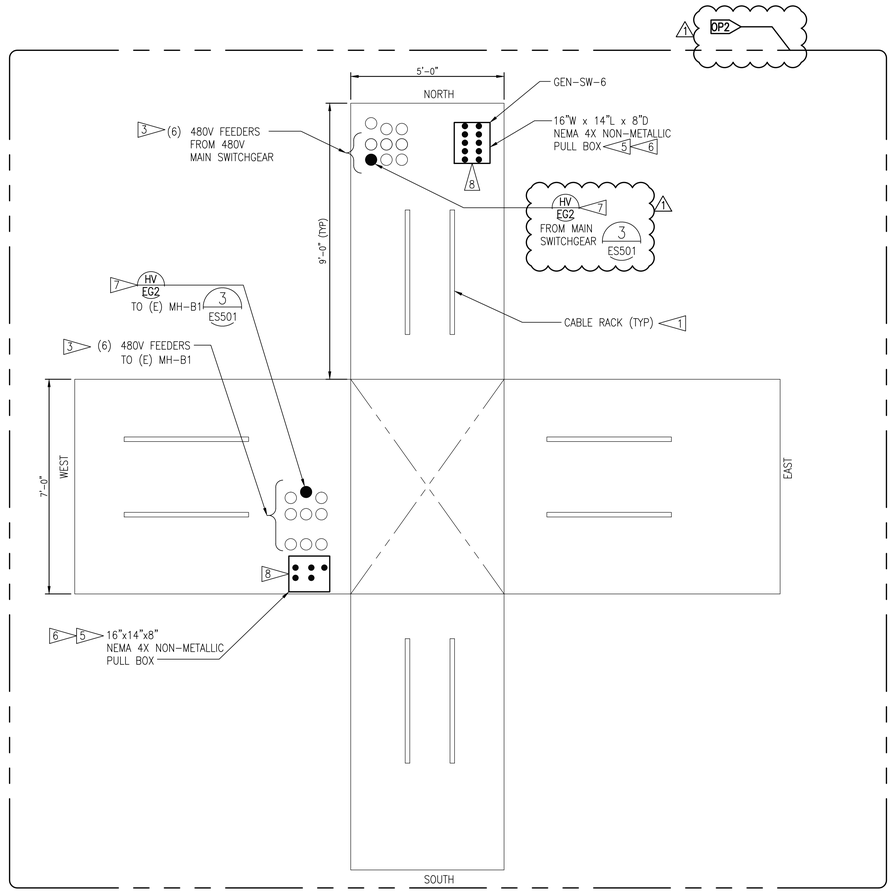
VA FORM 08-6231



MANHOLE (E) MH-A - BUTTERFLY

SCALE: 1/2" = 1'-0"

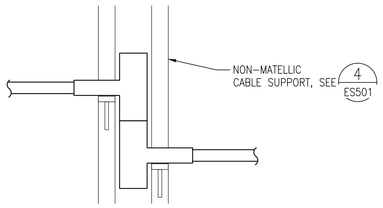
1



MANHOLE (E) MH-B - BUTTERFLY

SCALE: 1/2" = 1'-0"

2



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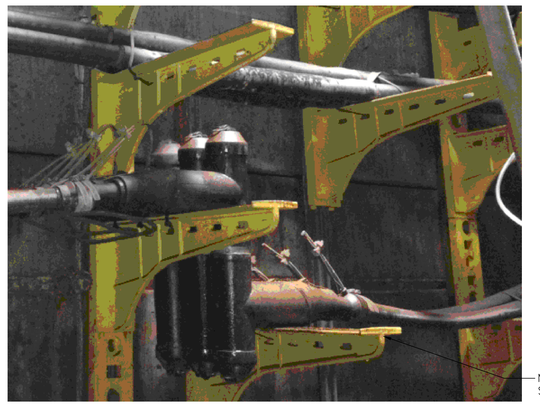
SEPARABLE CONNECTOR ELEVATION AND SUPPORT DETAIL

SCALE: NONE

3



T-SPLICE SUPPORT IMAGE

SCALE: NONE

4

GENERAL NOTES:

1. REFER TO ES800 AND ES801 FOR FEEDER SCHEDULE.

CONSTRUCTION NOTES:

1. REPLACE EXISTING METAL CABLE RACKS WITH HEAVY DUTY NON-METALLIC (FIBER GLASS) CABLE RACKS ON ALL 4 MANHOLE WALLS.
2. REPLACE EXISTING 5KV FEEDERS WITH 15KV FEEDERS.
3. DISCONNECT AND REMOVE 480V FEEDERS, BACK TO SOURCE.
4. NOT USED.
5. PROVIDE GASKETED, NEMA 4X PULL BOX WITH CONTINUOUS HINGE AND LOCKABLE CLAMP(S) ENCLOSURE.
6. ROUTE CONTROL WIRES IN (5) 1" LIQUID TIGHT FLEXIBLE NON-METALLIC CONDUIT BETWEEN PULL BOXES.
7. PROVIDE 15KV FEEDER AS SHOWN.
8. FIELD VERIFY EXACT LOCATION OF CONTROL WIRES AND PROVIDE MARK-UP 'TO' AND 'FROM' ON AS BUILT DRAWING AND RETURN TO VA ENGINEER OF RECORD.
9.

0 6" 1 2 4 6

1/2"=1'-0" feet

AMENDMENT DRAWING

SUPERSEDES ES501

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REVISION 1	04.01.16
Revisions	Date

CONSULTANTS:

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SAZAN # 269-1507

Drawing Title: EXISTING MANHOLE 'MH-A' AND 'MH-B' DETAILS

Approved Project Director: - - VAPAHCS PLANNING AND ENGINEERING

Project Title: VA PUGET SOUND HEALTH CARE SYSTEM UPGRADE SEATTLE ELECTRICAL DISTRIBUTION FROM 5kV TO 15kV

Location: 1660 South Columbian Way, Seattle, WA 98108

Date: 02-25-2016 | Checked: K.ANDERSON | Drawn: A.WOOLF

Project Number: 663-15-102

Building Number: SITE

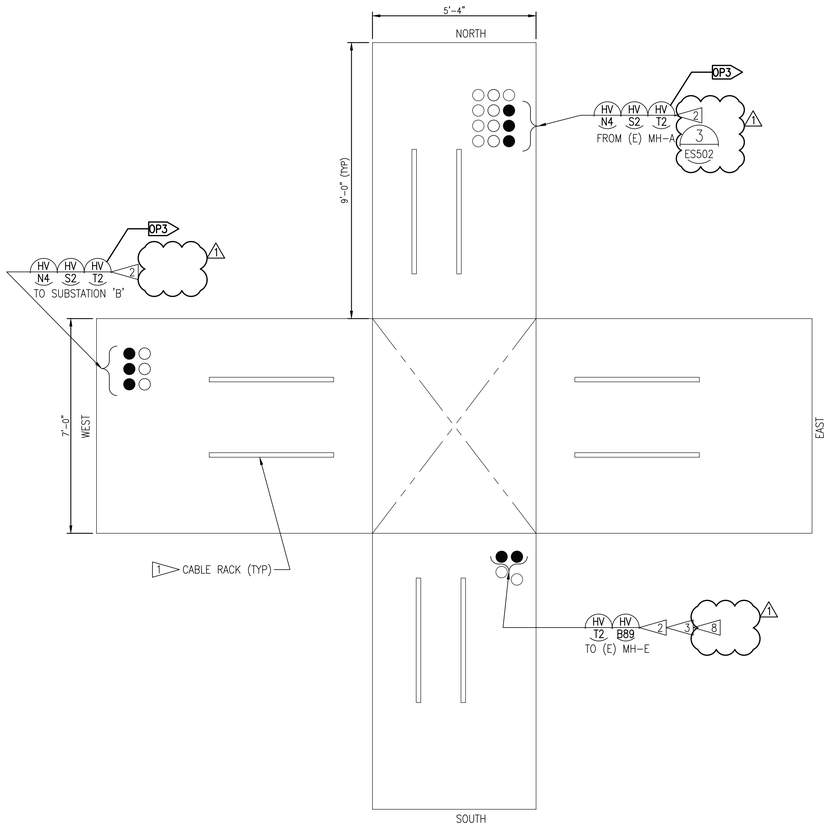
Drawing Number: ES501R

Dwg. --- of ---

Office of Construction and Facilities Management

Department of Veterans Affairs

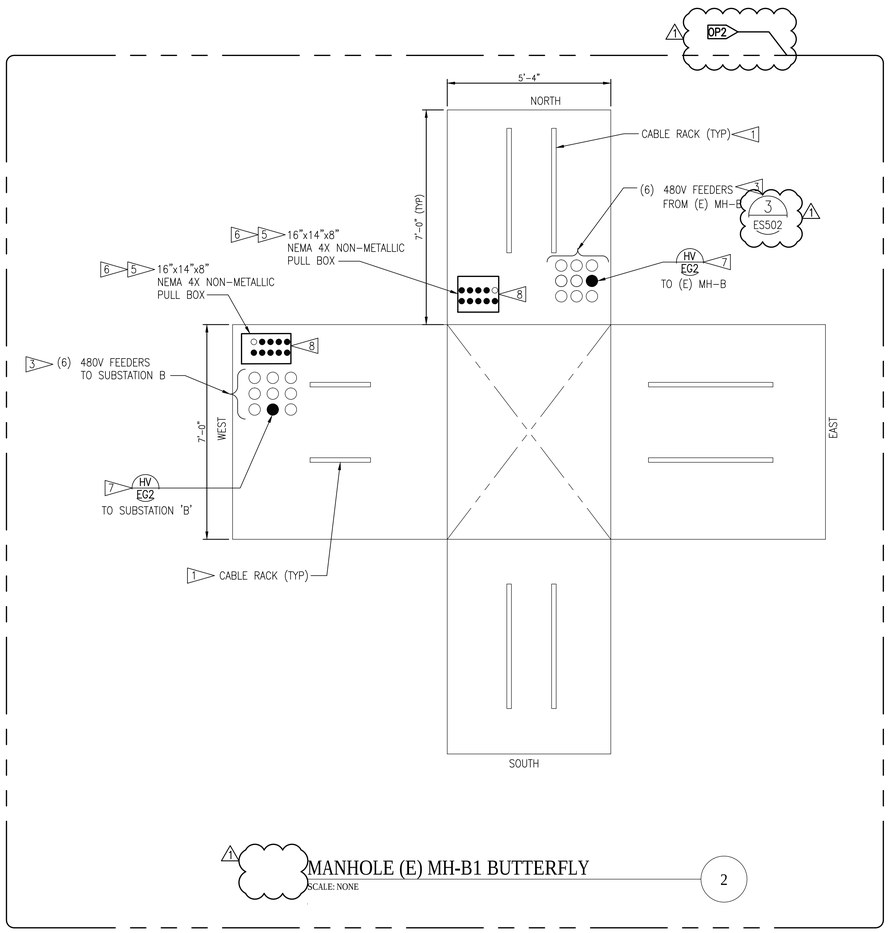
VA FORM 08-6231



MANHOLE (E) MH-A1 BUTTERFLY

SCALE: NONE

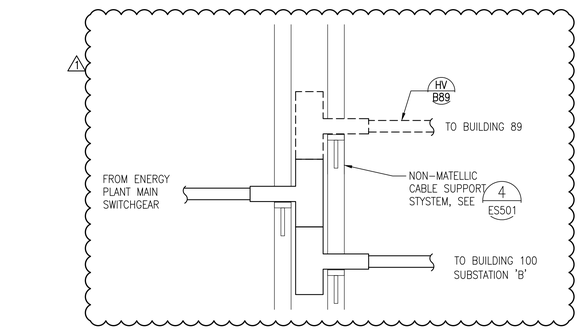
1



MANHOLE (E) MH-B1 BUTTERFLY

SCALE: NONE

2



SEPARABLE CONNECTOR ELEVATION AND SUPPORT DETAIL FOR MH-A1 (TYP)

SCALE: NONE

3

GENERAL NOTES:

1. FIELD VERIFY EXISTING CONDITIONS PRIOR COMMENCING WORK.
2. REFER TO ES800 AND ES801 FOR FEEDER SCHEDULE.

CONSTRUCTION NOTES:

1. REPLACE EXISTING METAL CABLE RACKS WITH HEAVY DUTY NON-METALLIC (FIBER GLASS) CABLE RACKS ON ALL 4 MANHOLE WALLS.
2. REPLACE EXISTING 5KV FEEDERS WITH 15KV FEEDERS AND PROVIDE 15KV FEEDER.
3. DISCONNECT AND REMOVE 480V FEEDERS, BACK TO SOURCE.
4. NOT USED.
5. PROVIDE PULL BOX WITH CONTINUOUS HINGE WITH LOCKABLE CLAMPS.
6. ROUTE CONTROL WIRES IN (5) 1" LIQUID TIGHT FLEXIBLE NON-METALLIC CONDUIT BETWEEN PULL BOXES.
7. PROVIDE ESSENTIAL POWER.
8. FIELD VERIFY EXACT LOCATION OF CONTROL WIRES AND PROVIDE MARK-UP 'TO' AND 'FROM' ON AS BUILT DRAWING AND RETURN TO VA ENGINEER OF RECORD.

0 6" 1 2 4 6
1/2"=1'-0" feet

AMENDMENT DRAWING

SUPERSEDES ES502

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REVISION 1	04.01.16
Revisions	Date

CONSULTANTS:

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SAZAN # 269-1507

Drawing Title: EXISTING MANHOLE 'MH-A1' AND 'MH-B1' DETAILS

Approved Project Director: - - VAPAHCS PLANNING AND ENGINEERING

Project Title: VA PUGET SOUND HEALTH CARE SYSTEM UPGRADE SEATTLE ELECTRICAL DISTRIBUTION FROM 5kV TO 15kV

Location: 1660 South Columbian Way, Seattle, WA 98108

Date: 02-25-2016 | Checked: K.ANDERSON | Drawn: A.WOOLF

Project Number: 663-15-102

Building Number: SITE

Drawing Number: ES502R

Dwg --- of ---

Office of Construction and Facilities Management

Department of Veterans Affairs

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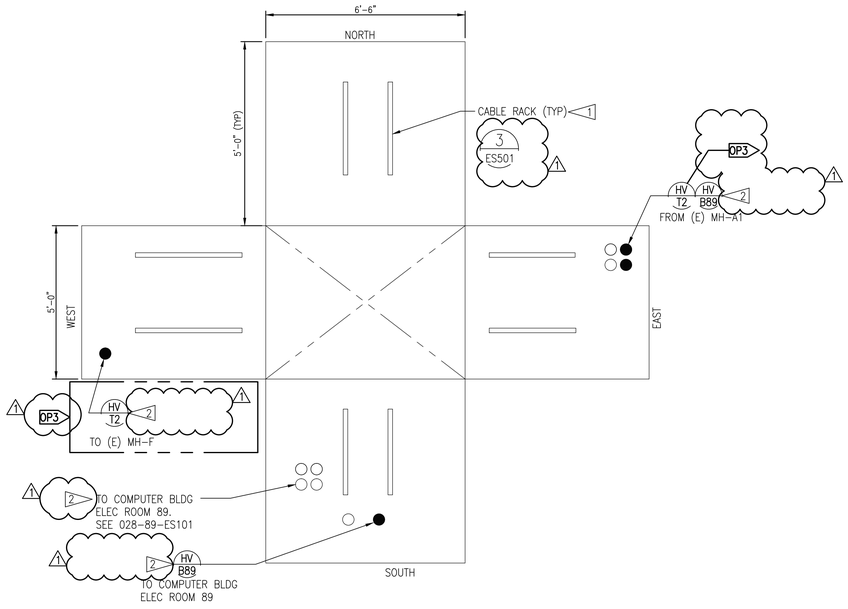
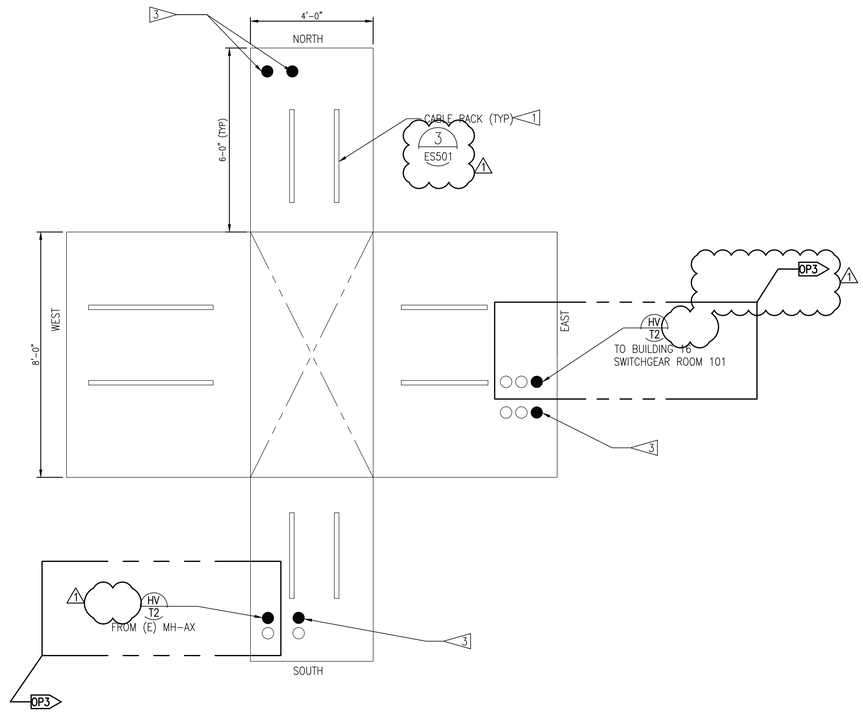
VA FORM 08-6231



MANHOLE (E) MH-E BUTTERFLY

SCALE: NONE

1



MANHOLE (E) MH-H BUTTERFLY

SCALE: NONE

2

GENERAL NOTES:

1. FIELD VERIFY EXISTING CONDITIONS PRIOR COMMENCING WORK.
2. REFER TO ES800 AND ES801 FOR FEEDER SCHEDULE.

CONSTRUCTION NOTES:

1. REPLACE EXISTING METAL CABLE RACKS WITH HEAVY DUTY NON-METALLIC (FIBER GLASS) CABLE RACKS ON ALL 4 MANHOLE WALLS.
2. REPLACE EXISTING 5KV FEEDERS WITH 15KV FEEDERS.
3. FIELD VERIFY EXACT LOCATION OF FEEDER CABLES AND PROVIDE MARK-UP 'TO' AND 'FROM' ON AS BUILT DRAWING AND RETURN TO VA ENGINEER OF RECORD.

0 6" 1 2 4 6
1/2"=1'-0" feet

AMENDMENT DRAWING

SUPERSEDES ES503

Revisions	Date
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REVISION 1	04-01-16

CONSULTANTS:

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SAZAN # 269-1507

Drawing Title: EXISTING MANHOLE 'MH-E' AND 'MH-H' DETAILS

Approved Project Director: - - VAPAHCS PLANNING AND ENGINEERING

Project Title: VA PUGET SOUND HEALTH CARE SYSTEM UPGRADE SEATTLE ELECTRICAL DISTRIBUTION FROM 5kV TO 15kV

Location: 1660 South Columbian Way, Seattle, WA 98108

Date: 02-25-2016 | Checked: K.ANDERSON | Drawn: A.WOOLF

Project Number: 663-15-102

Building Number: SITE

Drawing Number: ES503R

Dwg --- of ---

Office of Construction and Facilities Management

Department of Veterans Affairs

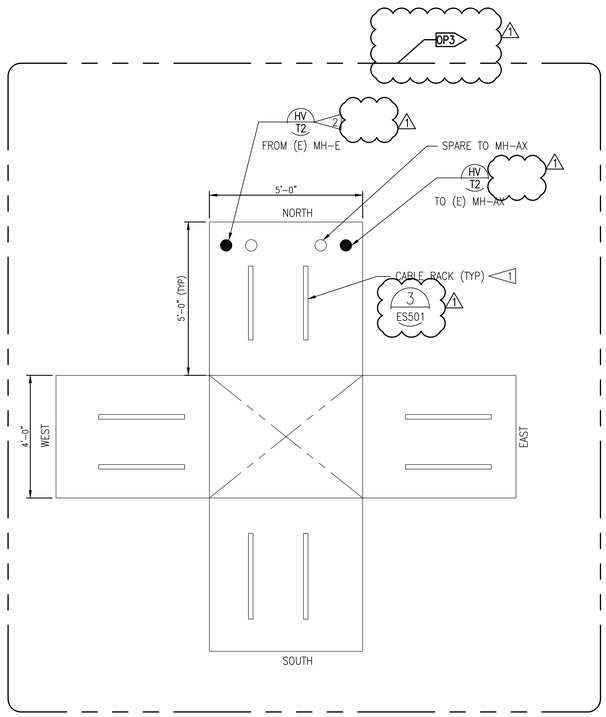
VA FORM 08-6231

GENERAL NOTES:

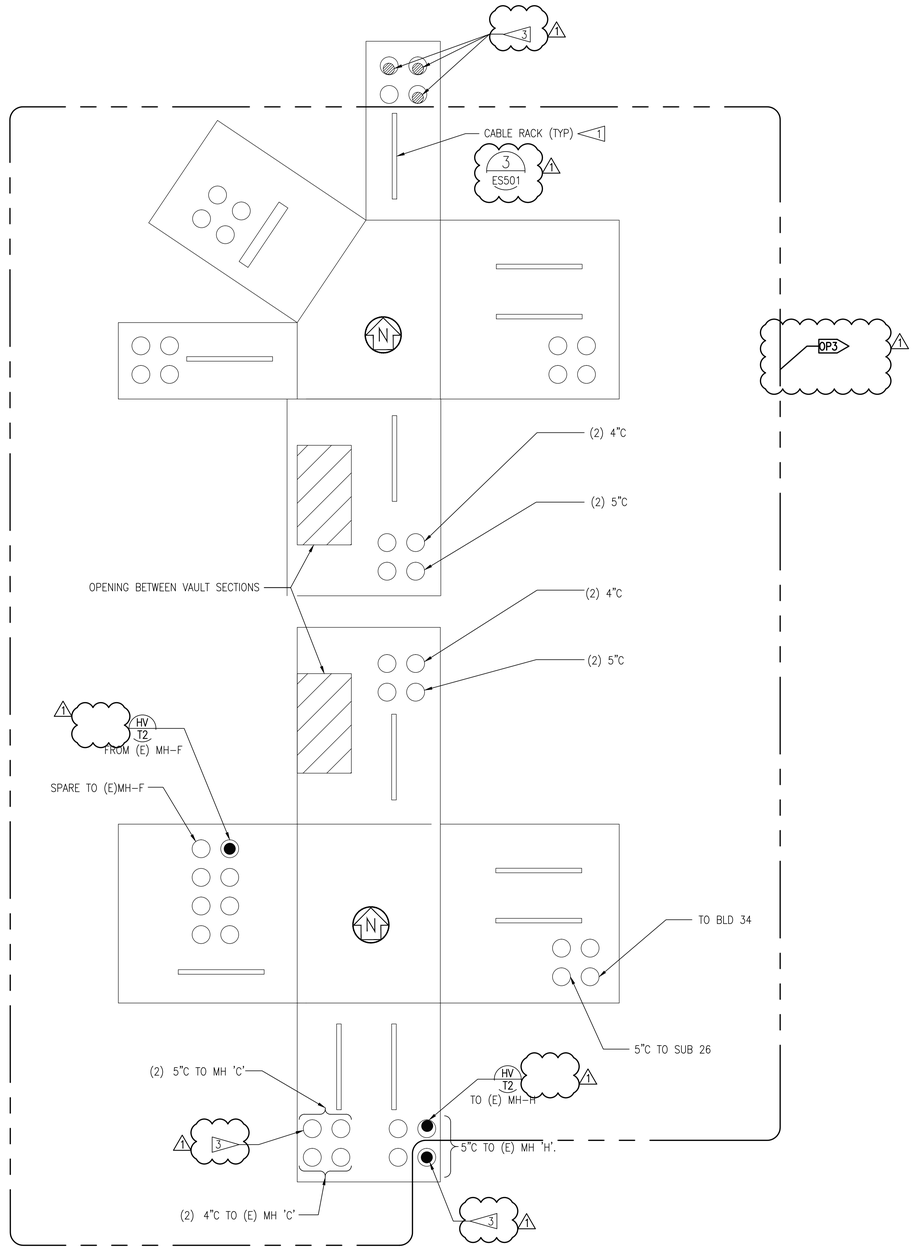
1. FIELD VERIFY EXISTING CONDITIONS PRIOR COMMENCING WORK.
2. REFER TO ES800 AND ES801 FOR FEEDER SCHEDULE.

CONSTRUCTION NOTES:

1. REPLACE EXISTING METAL CABLE RACKS WITH HEAVY DUTY NON-METALLIC (FIBER GLASS) CABLE RACKS ON ALL 4 MANHOLE WALLS.
2. REPLACE EXISTING 5KV FEEDERS WITH 15KV FEEDERS.
3. FIELD VERIFY EXACT LOCATION OF FEEDER CABLES AND PROVIDE MARK-UP 'TO' AND 'FROM' ON AS BUILT DRAWING AND RETURN TO VA ENGINEER OF RECORD.



MANHOLE (E) MH-F BUTTERFLY
SCALE: NONE
1



MANHOLE (E) MH-AX BUTTERFLY
SCALE: NONE
2

0 6" 1 2 4 6
1/2"=1'-0" feet

AMENDMENT DRAWING

SUPERSEDES ES504

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REVISION 1	04-01-16
Revisions:	Date

CONSULTANTS:

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SAZAN # 269-1507

Drawing Title: EXISTING MANHOLE 'MH-F' AND 'MH-AX' DETAILS

Approved Project Director: - - VAPAHCS PLANNING AND ENGINEERING

Project Title: VA PUGET SOUND HEALTH CARE SYSTEM UPGRADE SEATTLE ELECTRICAL DISTRIBUTION FROM 5kV TO 15kV

Location: 1660 South Columbian Way, Seattle, WA 98108

Date: 02-25-2016 | Checked: K.ANDERSON | Drawn: A.WOOLF

Project Number: 663-15-102

Building Number: SITE

Drawing Number: ES504R

Dwg. -- of --

Office of Construction and Facilities Management

Department of Veterans Affairs

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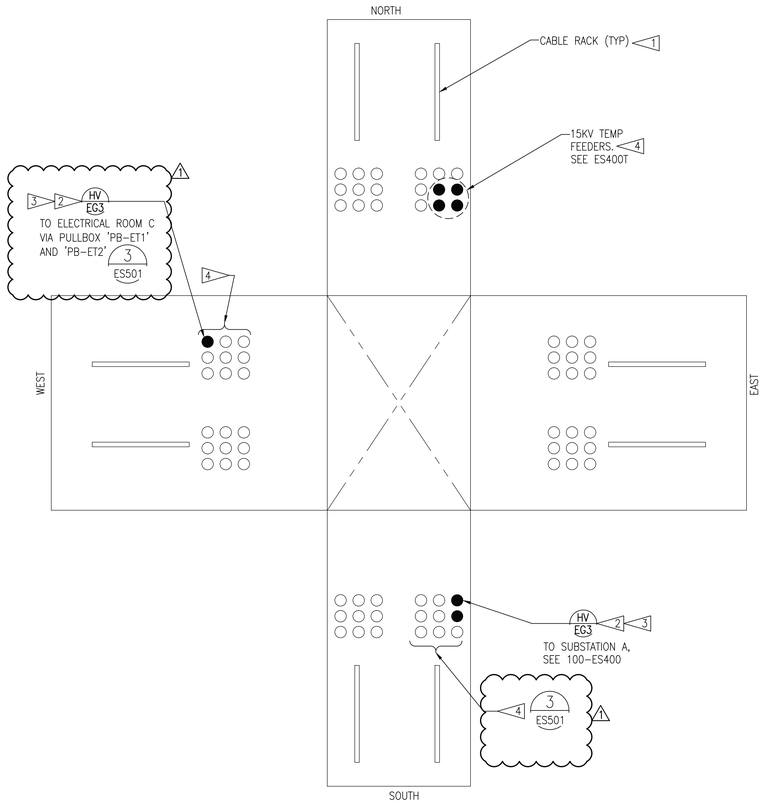
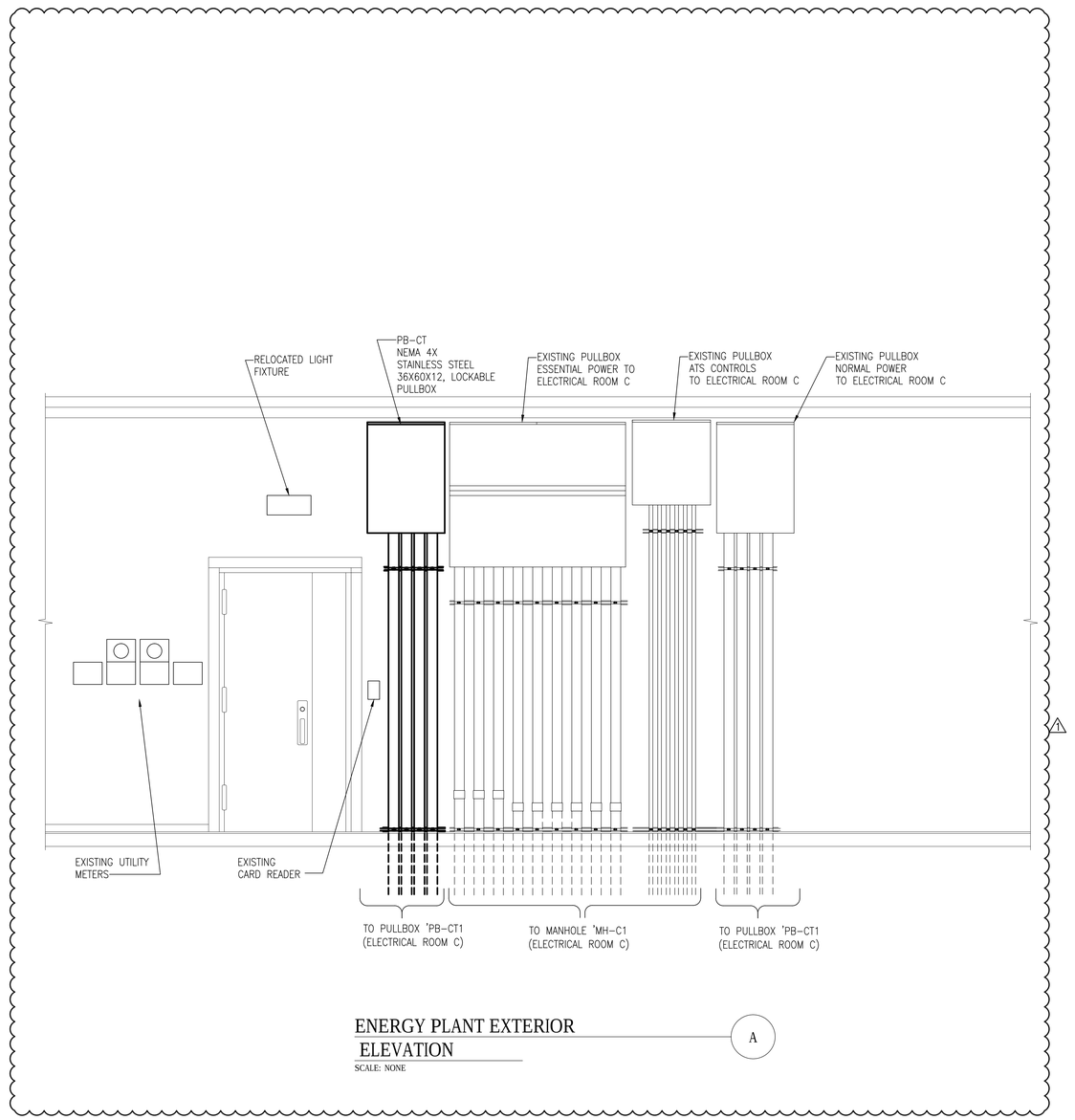


MANHOLE MH-ET1 BUTTERFLY

SCALE: NONE

1



ENERGY PLANT EXTERIOR ELEVATION

SCALE: NONE

A

GENERAL NOTES:

1. REFER TO ES800 AND ES801 FOR FEEDER SCHEDULE.

CONSTRUCTION NOTES:

1. 1 > PROVIDE HEAVY DUTY NON-METALLIC (FIBER GLASS) CABLE RACKS ON ALL 4 MANHOLE WALLS.
2. 2 > PROVIDE 15KV FEEDER. REFER TO ES400 FEEDER SIZE.
3. 3 > PROVIDE SEPARABLE CONNECTOR 600A SERIES, SIMILAR TO ELASTIMOLD K655SLK SERIES.
4. 4 > REFER TO ES400T FOR TEMPORARY FEEDERS INSTALLATION REQUIREMENTS. PLUG CONDUIT ENTRIES UPON REMOVAL OF TEMPORARY CONNECTIONS.

1

0 6" 1 2 4 6
1/2"=1'-0" feet

AMENDMENT DRAWING

SUPERSEDES ES505

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REVISION 1	04-01-16
Revisions	Date

CONSULTANTS:

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SAZAN # 269-1507

Drawing Title: MANHOLE "MH-ET1" DETAILS

Approved Project Director: - - VAPAHCS PLANNING AND ENGINEERING

Project Title: VA PUGET SOUND HEALTH CARE SYSTEM UPGRADE SEATTLE ELECTRICAL DISTRIBUTION FROM 5kV TO 15kV

Location: 1660 South Columbian Way, Seattle, WA 98108

Date: 02-25-2016 | Checked: K.ANDERSON | Drawn: A.WOOLF

Project Number: 663-15-102

Building Number: SITE

Drawing Number: ES505R

Dwg. --- of ---

Office of Construction and Facilities Management

Department of Veterans Affairs

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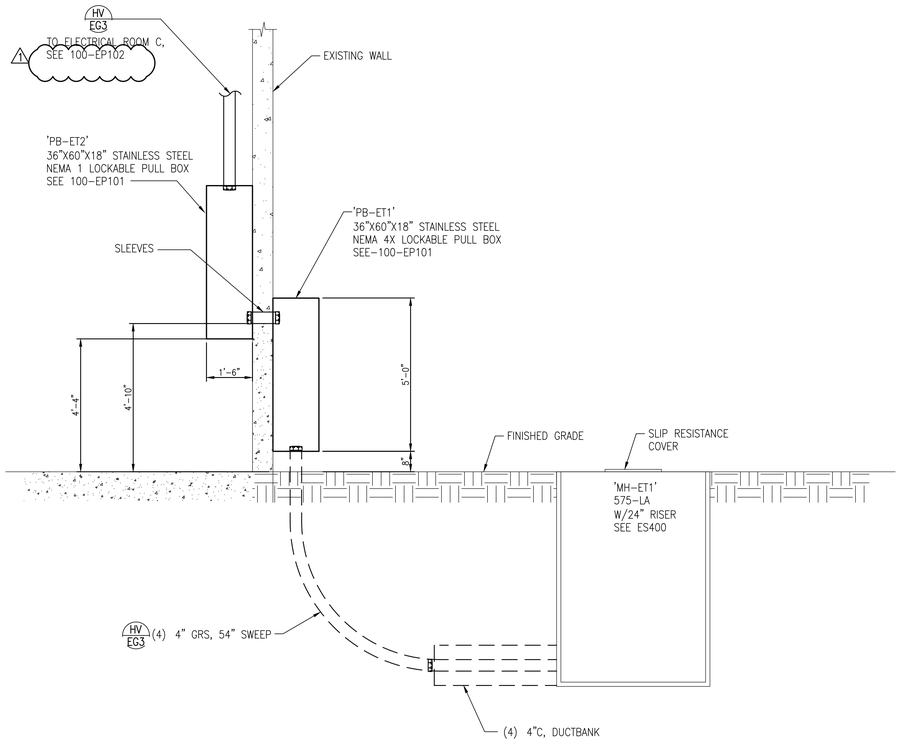
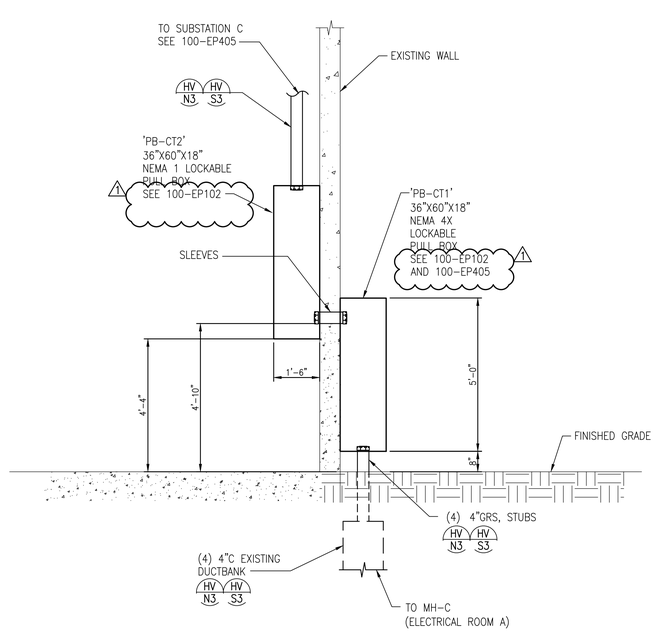


PULLBOX 'PB-ET1' AND 'PB-ET2' AND MH-ET1
ELEVATION DETAIL — 1

SCALE: 1/2" = 1'-0"



PULLBOX 'PB-CT1' AND 'PB-CT2'
ELEVATION DETAIL — 2

SCALE: NONE

GENERAL NOTES:

1. FIELD VERIFY EXISTING CONDITION PRIOR TO COMMENCING WORK.
2. REFER TO ES800 AND ES801 FOR FEEDER SCHEDULE.

1 CONSTRUCTION NOTES:

0 6" 1 2 4 6
1/2"=1'-0" feet

AMENDMENT DRAWING

SUPERSEDES ES506

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REVISION 1	04-01-16
Revisions	Date

CONSULTANTS:

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SAZAN # 269-1507

Drawing Title: PULLBOX MOUNTING DETAILS 'PB-ET1', 'PB-ET2', 'PB-CT1', AND 'PB-CT2'

Approved Project Director: - - VAPAHCS PLANNING AND ENGINEERING

Project Title: VA PUGET SOUND HEALTH CARE SYSTEM UPGRADE SEATTLE ELECTRICAL DISTRIBUTION FROM 5kV TO 15kV

Location: 1660 South Columbian Way, Seattle, WA 98108

Date: 02-25-2016 | Checked: K.ANDERSON | Drawn: A.WOOLF

Project Number: 663-15-102

Building Number: SITE

Drawing Number: ES506R

Dwg. --- of ---

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

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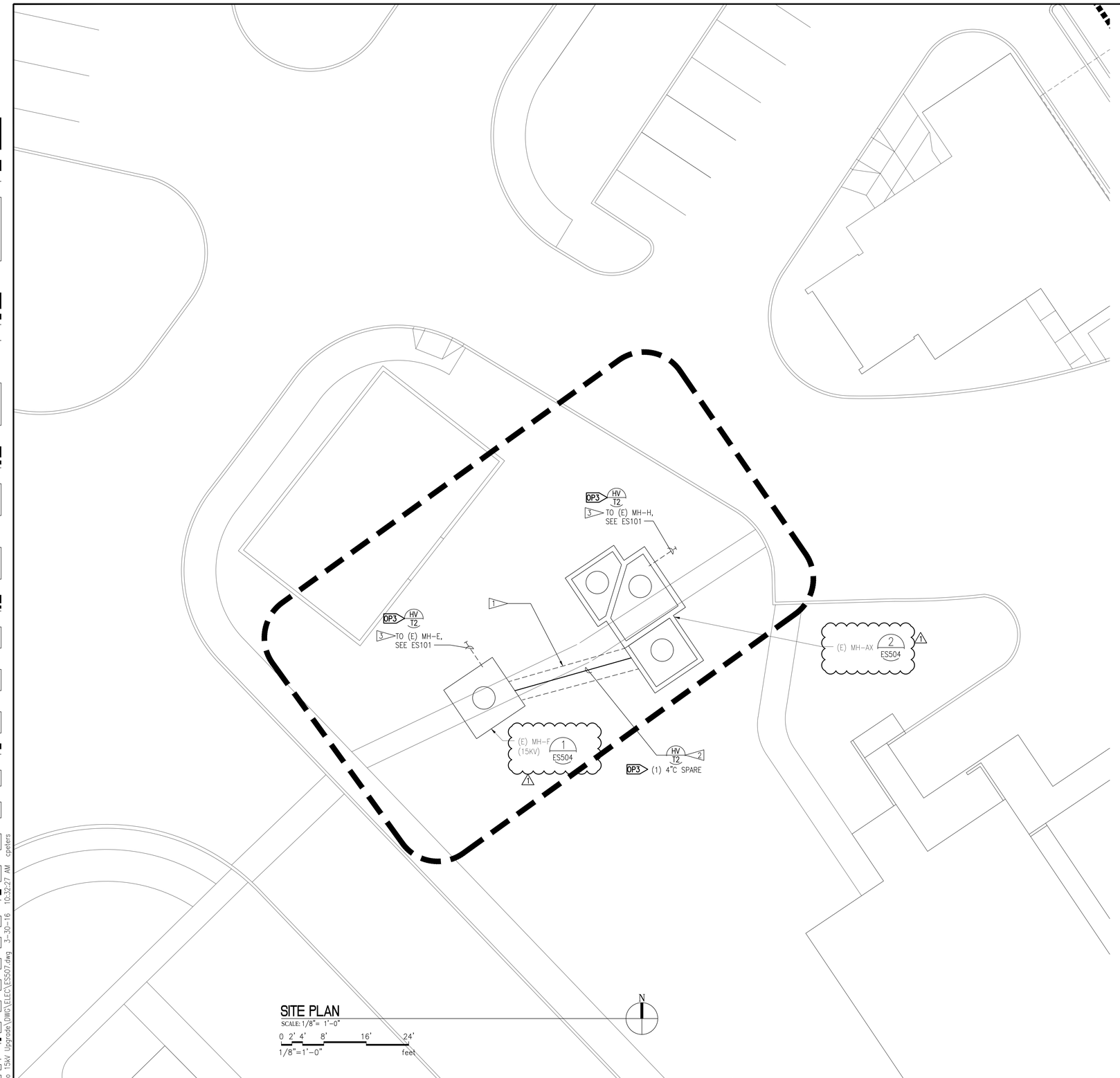
GENERAL NOTES:

1. REFER TO ARCHITECTURAL, CIVIL, STRUCTURAL, AND MECHANICAL DRAWINGS FOR RELATED WORK NOT SHOWN ON THIS DRAWING.
2. FIELD VERIFY EXISTING CONDITIONS PRIOR TO COMMENCING WORK.
3. REFER TO ENLARGED ELECTRICAL ROOMS PLAN TEMPORARIES DRAWINGS FOR SEQUENCE OF CONSTRUCTIONS.
4. THE EXISTING SCL EAST CAMPUS SERVICE YARD SHALL BE ENLARGED TO IN STAGES TO ACCOMMODATE THE SERVICE UPGRADE FROM 5KV TO 15KV.
5. REFER TO ES800 AND ES801 FOR FEEDER SCHEDULE.

CONSTRUCTION NOTES:

1. PROVIDE NEW DUCT BANK PER CIVIL DRAWINGS AND AS SHOWN. RE-USE EXISTING MANHOLE ENTRIES PER SHEET ES504.
2. PROVIDE FEEDER AS SHOWN.
3. REFER TO ES101 FOR FEEDER CONTINUATION.

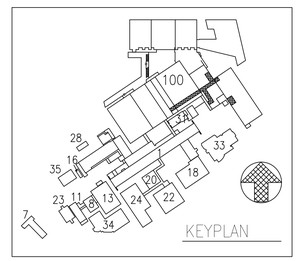


SITE PLAN

SCALE: 1/8"= 1'-0"

0 2' 4' 8' 16' 24'

1/8"=1'-0" feet



AMENDMENT DRAWING

SUPERSEDES ES507

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REVISION 1	04-01-16
Revisions	Date

CONSULTANTS:

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SAZAN # 269-1507

Drawing Title: PARTIAL ENLARGED SITE PLAN

Approved Project Director: VAPAHCS PLANNING AND ENGINEERING

Project Title: VA PUGET SOUND HEALTH CARE SYSTEM UPGRADE SEATTLE ELECTRICAL DISTRIBUTION FROM 5kV TO 15kV

Location: 1660 South Columbian Way, Seattle, WA 98108

Date: 02-25-2016 | Checked: A. WOOLF | Drawn: S. LIM

Project Number: 663-15-102

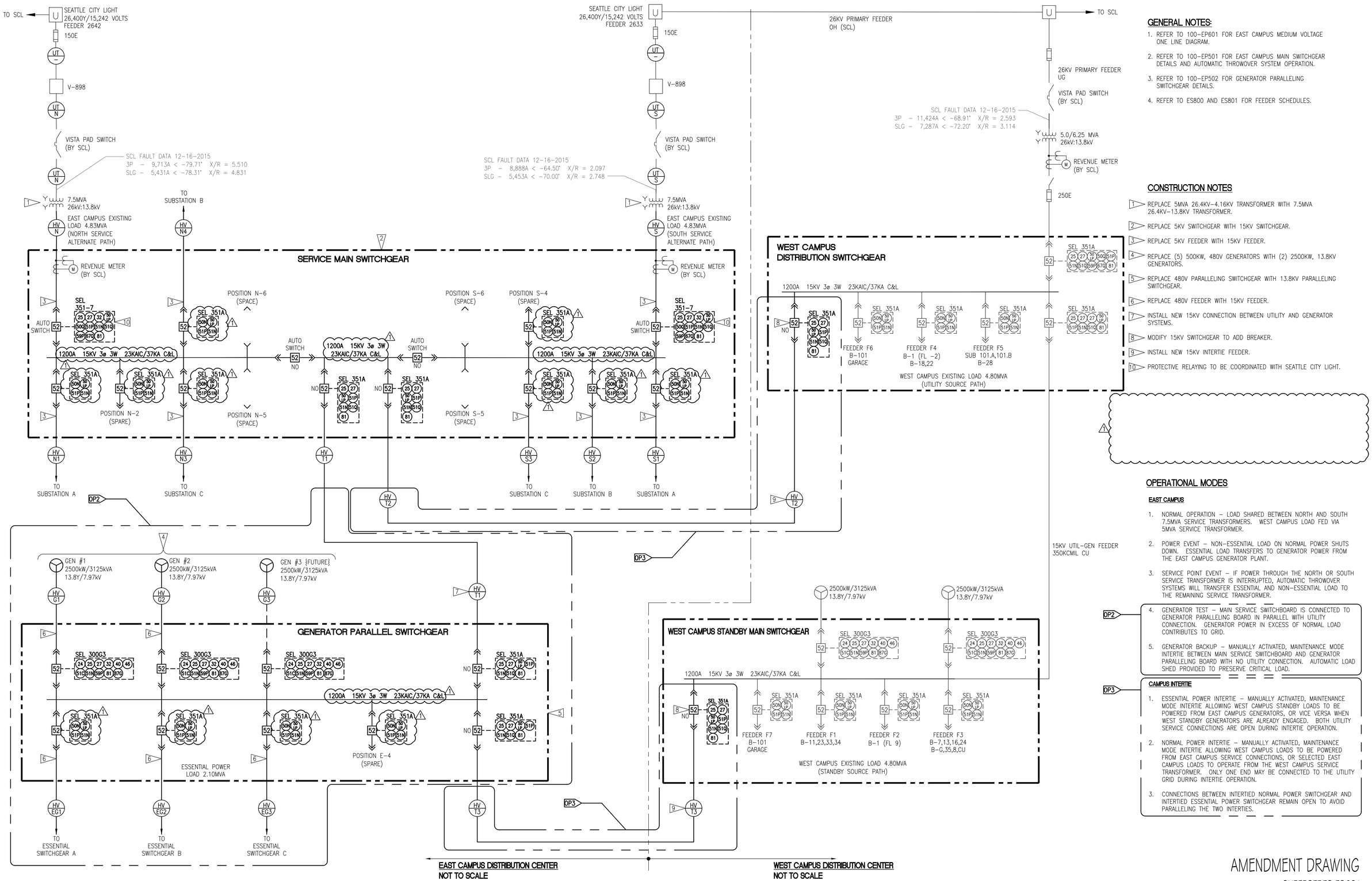
Building Number: 100

Drawing Number: ES507R

Dwg. --- of ---

Office of Construction and Facilities Management

Department of Veterans Affairs



GENERAL NOTES:

1. REFER TO 100-EP601 FOR EAST CAMPUS MEDIUM VOLTAGE ONE LINE DIAGRAM.
2. REFER TO 100-EP501 FOR EAST CAMPUS MAIN SWITCHGEAR DETAILS AND AUTOMATIC THROWOVER SYSTEM OPERATION.
3. REFER TO 100-EP502 FOR GENERATOR PARALLELING SWITCHGEAR DETAILS.
4. REFER TO ES800 AND ES801 FOR FEEDER SCHEDULES.

CONSTRUCTION NOTES

1. REPLACE 5MVA 26.4KV-4.16KV TRANSFORMER WITH 7.5MVA 26.4KV-13.8KV TRANSFORMER.
2. REPLACE 5KV SWITCHGEAR WITH 15KV SWITCHGEAR.
3. REPLACE 5KV FEEDER WITH 15KV FEEDER.
4. REPLACE (5) 500KW, 480V GENERATORS WITH (2) 2500KW, 13.8KV GENERATORS.
5. REPLACE 480V PARALLELING SWITCHGEAR WITH 13.8KV PARALLELING SWITCHGEAR.
6. REPLACE 480V FEEDER WITH 15KV FEEDER.
7. INSTALL NEW 15KV CONNECTION BETWEEN UTILITY AND GENERATOR SYSTEMS.
8. MODIFY 15KV SWITCHGEAR TO ADD BREAKER.
9. INSTALL NEW 15KV INTERTIE FEEDER.
10. PROTECTIVE RELAYING TO BE COORDINATED WITH SEATTLE CITY LIGHT.

1.

OPERATIONAL MODES

EAST CAMPUS

1. NORMAL OPERATION – LOAD SHARED BETWEEN NORTH AND SOUTH 7.5MVA SERVICE TRANSFORMERS. WEST CAMPUS LOAD FED VIA 5MVA SERVICE TRANSFORMER.
2. POWER EVENT – NON-ESSENTIAL LOAD ON NORMAL POWER SHUTS DOWN. ESSENTIAL LOAD TRANSFERS TO GENERATOR POWER FROM THE EAST CAMPUS GENERATOR PLANT.
3. SERVICE POINT EVENT – IF POWER THROUGH THE NORTH OR SOUTH SERVICE TRANSFORMER IS INTERRUPTED, AUTOMATIC THROWOVER SYSTEMS WILL TRANSFER ESSENTIAL AND NON-ESSENTIAL LOAD TO THE REMAINING SERVICE TRANSFORMER.

OP2

4. GENERATOR TEST – MAIN SERVICE SWITCHBOARD IS CONNECTED TO GENERATOR PARALLELING BOARD IN PARALLEL WITH UTILITY CONNECTION. GENERATOR POWER IN EXCESS OF NORMAL LOAD CONTRIBUTES TO GRID.
5. GENERATOR BACKUP – MANUALLY ACTIVATED, MAINTENANCE MODE INTERTIE BETWEEN MAIN SERVICE SWITCHBOARD AND GENERATOR PARALLELING BOARD WITH NO UTILITY CONNECTION. AUTOMATIC LOAD SHED PROVIDED TO PRESERVE CRITICAL LOAD.

OP3

CAMPUS INTERTIE

1. ESSENTIAL POWER INTERTIE – MANUALLY ACTIVATED, MAINTENANCE MODE INTERTIE ALLOWING WEST CAMPUS STANDBY LOADS TO BE POWERED FROM EAST CAMPUS GENERATORS, OR VICE VERSA WHEN WEST STANDBY GENERATORS ARE ALREADY ENGAGED. BOTH UTILITY SERVICE CONNECTIONS ARE OPEN DURING INTERTIE OPERATION.
2. NORMAL POWER INTERTIE – MANUALLY ACTIVATED, MAINTENANCE MODE INTERTIE ALLOWING WEST CAMPUS LOADS TO BE POWERED FROM EAST CAMPUS SERVICE CONNECTIONS, OR SELECTED EAST CAMPUS LOADS TO OPERATE FROM THE WEST CAMPUS SERVICE TRANSFORMER. ONLY ONE END MAY BE CONNECTED TO THE UTILITY GRID DURING INTERTIE OPERATION.
3. CONNECTIONS BETWEEN INTERTIED NORMAL POWER SWITCHGEAR AND INTERTIED ESSENTIAL POWER SWITCHGEAR REMAIN OPEN TO AVOID PARALLELING THE TWO INTERTIES.

AMENDMENT DRAWING

SUPERSEDES ES601

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REVISION 1	04-01-16
Revisions	Date

CONSULTANTS:

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SAZAN # 269-1507

Drawing Title: ONE LINE DIAGRAM 15KV CAMPUS DISTRIBUTION –

Approved: Project Director – – VAPAHCS PLANNING AND ENGINEERING

Project Title: VA PUGET SOUND HEALTH CARE SYSTEM UPGRADE SEATTLE ELECTRICAL DISTRIBUTION FROM 5kV TO 15kV

Location: 1660 South Columbian Way, Seattle, WA 98105

Date: 02-25-2016 | Checked: K. ANDERSON | Drawn: WOOLF

Project Number: 663-15-102

Building Number: SITE

Drawing Number: ES601R

Dwg. -- of --

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

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three inches = one foot | one and one half inches = one foot | one inch = one foot | three quarters inch = one foot | one half inch = one foot | three eighths inch = one foot | one quarter inch = one foot | one eighth inch = one foot

ESSENTIAL A FEEDER SCHEDULE

REVISED FEEDER NO/TAG	OLD FEEDER NO/TAG	FROM	TO	CONDUIT	CABLES/ CONDUCTORS	NOTE
LV-EA1	LV-EA1	ESSENTIAL SWITCHGEAR A	ATS QA4 (FIRE PUMP)	2-1/2"C	3#250KCMIL, 1#3 G	CONCRETE ENCASE
LV-EA2	LV-EA2	ESSENTIAL SWITCHGEAR A	ATS QA3 (QMCC-A2)	(2) 3"C	3#300KCMIL, 1#1 G	
LV-EA3	LV-EA3	ESSENTIAL SWITCHGEAR A	ATS QA2 (QMCC-A1)	3"C	3#350KCMIL, 1#4 G	
LV-EA4	LV-EA4	ESSENTIAL SWITCHGEAR A	ATS EA1 (PANEL BJE2)	2-1/2"C	3#250KCMIL, 1#1/0 G	PANEL BJE2 VIA XFMR
LV-EA5	LV-EA5	ESSENTIAL SWITCHGEAR A	ATS QA1 (QMCC-A3)	2-1/2"C	3#250KCMIL, 1#1/0 G	ENERGY PLANT
	LV-EA6	ESSENTIAL SWITCHGEAR A	ESSENTIAL SWITCHGEAR B	(6) 3-1/2"C	4#350KCMIL, 1#4/0 G	REMOVE CONNECTION
	LV-EA7	ESSENTIAL SWITCHGEAR A	ESSENTIAL SWITCHGEAR C	(6) 3-1/2"C	4#500KCMIL, 1#4/0 G	REMOVE CONNECTION
LV-EA8	LV-EA8	ESSENTIAL SWITCHGEAR A	ATS EA2 BLDG 103 MEZZ	2"C	4#1/0, 1#8G	THERAPY POOL - BLDG 103
LV-EA9	LV-EA9	ESSENTIAL SWITCHGEAR A	ATS PNL GARAGE (PANEL BJE2)	(2) 4"C	4#600KCMIL, 1#3/0G	

OP2

1

SUBSTATION A FEEDER SCHEDULE

REVISED FEEDER NO/TAG	OLD FEEDER NO/TAG	FROM	TO	CONDUIT	CABLES/ CONDUCTORS	NOTE
LV-AR1	LV-HA1	SUBSTATION A	CHILLER 1 (519 HP)	(3) 2-1/2"C	3#300KCMIL, 1#1/0 G	
LV-AR4	LV-HA3	SUBSTATION A	CHILLER 2 (519 HP)	(3) 2-1/2"C	3#300KCMIL, 1#1/0 G	
LV-AR5	LV-HA5	SUBSTATION A	NMCC-A1	(2) 3"C	3#400KCMIL, 1#1/0 G	
LV-AR6	LV-HA7	SUBSTATION A	PANEL MDP-TP	(2) 3"C	4#350KCMIL, 1#1 G	THERAPY POOL BLDG 103
LV-AR2	LV-HA11	SUBSTATION A	PANEL DP-HV	2-1/2"C	4#250KCMIL, 1#6 G	FISHER HOUSE BLDG 36
LV-AL4	LV-HA2	SUBSTATION A	ATS QA1 (QMCC-A3)	2-1/2"C	3#250KCMIL, 1#1/0 G	
LV-AL3	LV-HA4	SUBSTATION A	ATS EA1 (PANEL BJE2)	2-1/2"C	3#250KCMIL, 1#1/0 G	PANEL BJE2 VIA XFMR
LV-AL8	LV-HA6	SUBSTATION A	ATS QA2 (QMCC-A1)	3"C	3#350KCMIL, 1#4 G	
LV-AL9	LV-HA8	SUBSTATION A	ATS QA3 (QMCC-A2)	(2) 3"C	3#300KCMIL, 1#1 G	
LV-AL5	LV-HA10	SUBSTATION A	ATS QA4 (FIRE PUMP)	2-1/2"C	3#250KCMIL, 1#3 G	CONCRETE ENCASE
LV-AR3	LV-HA12	SUBSTATION A	CHILLER 3 (427 HP)	(2) 3-1/2""C	3#500KCMIL, 1#1/0 G	
LV-AD1	LV-HA9	SUBSTATION A	SWBD NDPA-1	(4) 3"C	4#500KCMIL, 1#4/0 G	

MEDIUM VOLTAGE FEEDER SCHEDULE

REVISED FEEDER NO/TAG	OLD FEEDER NO/TAG	FROM	TO	CONDUIT	CABLES/ CONDUCTORS	VOLT	NOTE
UT		SCL OVERHEAD POWER POLE	SCL VAULT V-898	(4) 5"	SEE NOTE	26 kV	BY SCL
UT-N	INCOMING SERVICE	SCL VAULT V-898	SCL VISTA PAD SWITCH SW-N1 AND SCL 7.5MVA XFMR-N1	(2) 5"	SEE NOTE	26 kV	INCOMING NEW DUCTBANK CABLE BY SCL
UT-S	INCOMING SERVICE	SCL VAULT V-898	SCL VISTA PAD SWITCH SW-S1 AND SCL 7.5MVA XFMR-S1	(2) 5"	SEE NOTE	26 kV	INCOMING NEW DUCTBANK CABLE BY SCL
HV-N		SCL -XFMR N1 (EAST CAMPUS SERVICE YARD)	MAIN SWITCHGEAR VIA MH-N1	(2) 5"	3#350KCMIL, 15kV, 1C, SHIELDED EPR, TYPE MV-105, 133% INSULATION LEVEL, 1#4/0G	15 kV	NEW CONDUITS NEW CABLES SEE PLAN
HV-S		SCL -XFMR S1 (EAST CAMPUS SERVICE YARD)	MAIN SWITCHGEAR VIA MH-S1	(2) 5"	3#350KCMIL, 15kV, 1C, SHIELDED EPR, TYPE MV-105, 133% INSULATION LEVEL, 1#4/0G	15 kV	NEW CONDUITS NEW CABLES SEE PLAN
HV-N	HV-1	SCL -XFMR N1 (EAST CAMPUS SERVICE YARD)	MAIN SERVICE SWITCHGEAR	(2) 4" (6) 4", SPARE	3#350KCMIL, 15kV, 1C, SHIELDED EPR, TYPE MV-105, 133% INSULATION LEVEL, 1#4/0G	15 kV	EXISTING AND NEW CONDUITS NEW CABLES
HV-S	HV-2	SCL -XFMR S1 (EAST CAMPUS SERVICE YARD)	MAIN SWITCHGEAR VIA MH-S1	(2) 4" (6) 4", SPARE	3#350KCMIL, 15kV, 1C, SHIELDED EPR, TYPE MV-105, 133% INSULATION LEVEL, 1#4/0G	15 kV	EXISTING AND NEW CONDUITS NEW CABLES
HV-N1	HV 1-1	MAIN SERVICE SWITCHGEAR	SUBSTATION A	(1) 4" (3) 4", SPARE	3#1/0, 15kV, 1C, SHIELDED EPR, TYPE MV-105, 133% INSULATION LEVEL, 1#2G	15 kV	EXISTING CONDUIT NEW CABLES ENERGY PLANT
HV-N4	HV 1-2	MAIN SERVICE SWITCHGEAR	SUBSTATION B VIA MANMHOLE MH-A, MH-A1	(1) 4" (3) 4", SPARE	3#1/0, 15kV, 1C, SHIELDED EPR, TYPE MV-105, 133% INSULATION LEVEL, 1#2G	15 kV	EXISTING CONDUIT NEW CABLES ENERGY PLANT
HV-N3	HV 1-3	MAIN SERVICE SWITCHGEAR	SUBSTATION C VIA MH-D, PULL BOX CT1, AND CT2	(1) 4" (3) 4", SPARE	3#1/0, 15kV, 1C, SHIELDED EPR, TYPE MV-105, 133% INSULATION LEVEL, 1#2G	15 kV	EXISTING AND CONDUITS NEW CABLES
HV-S1	HV 2-1	MAIN SERVICE SWITCHGEAR	SUBSTATION A	(1) 4" (3) 4", SPARE	3#1/0, 15kV, 1C, SHIELDED EPR, TYPE MV-105, 133% INSULATION LEVEL, 1#2G	15 kV	EXISTING CONDUIT NEW CABLES ENERGY PLANT
HV-S2	HV 2-2	MAIN SERVICE SWITCHGEAR	SUBSTATION B VIA MANMHOLE MH-A, MH-A1	(1) 4" (3) 4", SPARE	3#1/0, 15kV, 1C, SHIELDED EPR, TYPE MV-105, 133% INSULATION LEVEL, 1#2G	15 kV	EXISTING CONDUIT NEW CABLES ENERGY PLANT
HV-S3	HV 2-3	MAIN SERVICE SWITCHGEAR	SUBSTATION C VIA MH-D, PULL BOX CT1, AND CT2	(1) 4" (3) 4", SPARE	3#1/0, 15kV, 1C, SHIELDED EPR, TYPE MV-105, 133% INSULATION LEVEL, 1#2G	15 kV	EXISTING AND CONDUITS NEW CABLES
HV-B89	HV 2-4	MAIN SERVICE SWITCHGEAR	PNL DP2 VIA 300KW REACTOR	(1) 4"	3#1/0, 15kV, 1C, SHIELDED EPR, TYPE MV-105, 133% INSULATION LEVEL, 1#2G	15 kV	EXISTING AND CONDUITS NEW CABLES
HV-T1		MAIN SERVICE SWITCHGEAR EAST CAMPUS	GENERATOR PARALLEL SWITCHGEAR	(1) 4"	3#350KCMIL, 15kV, 1C, SHIELDED EPR, TYPE MV-105, 133% INSULATION LEVEL, 1#4/0G	15 kV	EAST CAMPUS UTILITY/GEN TIE FEEDER
HV-T2		MAIN SERVICE SWITCHGEAR EAST CAMPUS	MAIN SERVICE SWITCHGEAR WEST CAMPUS	(1) 4" (1) 4" SPARE	3#350KCMIL, 15kV, 1C, SHIELDED EPR, TYPE MV-105, 133% INSULATION LEVEL, 1#4/0G	15 kV	NORMAL INTERTIE
HV-T3		GENERATOR PARALLEL SWITCHGEAR	MAIN SERVICE SWITCHGEAR WEST CAMPUS	(1) 4" GRS **(2) 2" GRS**	3#350KCMIL, 15kV, 1C, SHIELDED EPR, TYPE MV-105, 133% INSULATION LEVEL, 1#4/0G **FIBER OPTIC CABLES**	15 kV **CTL**	ESSENTIAL INTERTIE **GENERATOR CONTROLS**
HV-G1		GENERATOR #1	GENERATOR PARALLEL SWITCHGEAR		**200A+200A(G) SWITCHGEAR BUS IN TRANSITION SECTION**	15 kV	**SEE PLAN 100-EP403**
HV-G2		GENERATOR #2	GENERATOR PARALLEL SWITCHGEAR	(1) 4"C	3#1/0, 15kV, 1C, SHIELDED EPR, TYPE MV-105, 133% INSULATION LEVEL, 1#2G	15 kV	NEW CONDUIT AND CABLES
HV-G3		GENERATOR #3	GENERATOR PARALLEL SWITCHGEAR	(1) 4"C	3#1/0, 15kV, 1C, SHIELDED EPR, TYPE MV-105, 133% INSULATION LEVEL, 1#2G	15 kV	NEW CONDUIT AND CABLES
HV-EG1		GENERATOR PARALLEL SWITCHGEAR	ESSENTIAL SWITCHGEAR A	(1) 4"C	3#1/0, 15kV, 1C, SHIELDED EPR, TYPE MV-105, 133% INSULATION LEVEL, 1#2G	15 kV	NEW CONDUIT AND CABLES
HV-EG2		GENERATOR PARALLEL SWITCHGEAR	ESSENTIAL SWITCHGEAR B VIA MH-B AND MH-B1	(1) 4"C	3#1/0, 15kV, 1C, SHIELDED EPR, TYPE MV-105, 133% INSULATION LEVEL, 1#2G	15 kV	**EXISTING AND** NEW CONDUITS NEW CABLES
HV-EG3		GENERATOR PARALLEL SWITCHGEAR	ESSENTIAL SWITCHGEAR C VIA VIA MH-ET1, PB-ET1, PB-ET2	(1) 4"C	3#1/0, 15kV, 1C, SHIELDED EPR, TYPE MV-105, 133% INSULATION LEVEL, 1#2G	15 kV	NEW CONDUIT AND CABLES

OP2

OP3

OP2

SUBSTATION C FEEDER SCHEDULE

REVISED FEEDER NO/TAG	OLD FEEDER NO/TAG	FROM	TO	CONDUIT	CABLES/ CONDUCTORS	NOTE
LV-CR2	LV-HC1	SUBSTATION C	FN RISER	(3) 3-1/2"C	4#500KCMIL, 1#2/0 G	
LV-CR3	LV-HC3	SUBSTATION C	PANEL NDPC	(3) 3"	4#500KCMIL, 1#2/0 G	
LV-CR4	LV-HC5	SUBSTATION C	PANEL PBKN4	2-1/2"C	3#300KCMIL, 1#4 G	
LV-CR5	LV-HC7	SUBSTATION C	NMCC-C1	3"C	3#400KCMIL, 1#3 G	
LV-CR6	LV-HC9	SUBSTATION C	PNL ERMDPN	(2) 3"C	4#300KCMIL, 1#4 G	ED BLDG 102
LV-CL1	LV-HC2	SUBSTATION C	ATS EC1 (PANEL EDPC)	2-1/2"C	4#3/0, 1#6 G	
LV-CL4	LV-HC4	SUBSTATION C	ATS QC1 (PANEL QDPC)	(2) 3"C	4#250KCMIL, 1#3 G	
LV-CL2	LV-HC6	SUBSTATION C	ATS CC1 (PANEL 4GC4)	2-1/2"C	3#250KCMIL, 1#3 G	
LV-CL3	LV-HC8	SUBSTATION C	ATS QC2 (QMCC-C1)	(3) 3"C	3#500KCMIL, 1#1/0 G	
LV-CL5	LV-HC10	SUBSTATION C	ATS QC3 (PANEL P8QE4)	(3) 3"C 3"C SPARE	3#500KCMIL, 1#1/0 G	REMOVE ONE SET

1

ESSENTIAL SWITCHGEAR C FEEDER SCHEDULE

REVISED FEEDER NO/TAG	OLD FEEDER NO/TAG	FROM	TO	CONDUIT	CABLES/ CONDUCTORS	NOTE
LV-EC4	LV-EC1	ESSENTIAL SWITCHGEAR C	ATS QC1 (PANEL QDPC)	(2) 3"C	4#250KCMIL, 1#3 G	
LV-EC3	LV-EC2	ESSENTIAL SWITCHGEAR C	ATS QC3 (PANEL PBQE4)	(2) 4"C	3#500KCMIL, 1#1/0G	NEW CONDUIT AND CONDUCTORS
LV-EC5	LV-EC3	ESSENTIAL SWITCHGEAR C	ATS QC2 (QMCC-C1)	(3) 3"C	3#400KCMIL, 1#3 G	
LV-EC2	LV-EC4	ESSENTIAL SWITCHGEAR C	ATS CC1 (PANEL 4GC4)	2-1/2"C	3#250KCMIL, 1#4 G	
LV-EC1	LV-EC5	ESSENTIAL SWITCHGEAR C	ATS EC1 (PANEL EDPC)	2-1/2"C	4#3/0, 1#16G	
LV-EC8	LV-EC6	ESSENTIAL SWITCHGEAR C	ATS X, ATS Y, ATS Z PANEL ERMDPN	(2) 3"C	4#300KCMIL, 1#3 G	ED BLDG 102
LV-EC9	LV-EC7	ESSENTIAL SWITCHGEAR C	SWBD EPSW (BLDG 101)			FIELD VERIFY, INDICATE CONDUIT, WIRE SIZE ON ON AS-BUILT DWG

SUBSTATION B FEEDER SCHEDULE

REVISED FEEDER NO/TAG	OLD FEEDER NO/TAG	FROM	TO	CONDUIT	CABLES/ CONDUCTORS	NOTE
LV-BR2	LV-HB1	SUBSTATION B	PANEL PIN4	3"C	4#500KCMIL, 1#3 G	
LV-BR4	LV-HB3	SUBSTATION B	DN RISER	(4) 3"	4#350KCMIL, 1#3/0 G	
LV-BR5	LV-HB5	SUBSTATION B	BN RISER	(2) 3"C	4#350KCMIL, 1#1 G	
LV-BR6	LV-HB7	SUBSTATION B	CN RISER	(2) 3"C	4#350KCMIL, 1#1 G	
LV-BR7	LV-HB9	SUBSTATION B	MRI NORMAL	3"C	3#500KCMIL, 1#3 G	
LV-BR1	LV-HB11	SUBSTATION B	GIMC PCC	4"C	4#600KCMIL, 1#250KCMIL G	FISHER HOUSE
LV-BR3	LV-HB13	SUBSTATION B	MEZZ PP1	(2) 3"C	4#500KCMIL, 1#3 G	BLDG 37 MEZZ
LV-BL1	LV-HB2	SUBSTATION B	ATS CB1 (PANEL CDPB)	(2) 3"C	4#300KCMIL, 1#1 G	
LV-BL3	LV-HB4	SUBSTATION B	ATS QB1 (PANEL QDPB)	(2) 3"C	4#350KCMIL, 1#1 G	
LV-BL2	LV-HB6	SUBSTATION B	ATS QB2 (PANEL P4DCR4)	(2) 2-1/2"C	4#300KCMIL, 1#1 G	
LV-BL4	LV-HB8	SUBSTATION B	ATS EB1 (PANEL EDPB)	2"C	4#1/0, 1#6 G	
LV-BL5	LV-HB10	SUBSTATION B	DX RISER	(3) 3"C	4#350KCMIL, 1#2/0 G	
LV-BL6	LV-HB12	SUBSTATION B	PANEL NDPB	3-1/2"C	4#500KCMIL, 1#3 G	

OP2

ESSENTIAL SWITCHEAR B FEEDER SCHEDULE

REVISED FEEDER NO/TAG	OLD FEEDER NO/TAG	FROM	TO	CONDUIT	CABLES/ CONDUCTORS	NOTE
LV-EB4	LV-EB1	ESSENTIAL SWITCHGEAR B	ATS EB1 (PANEL EDPB)	2"C	4#1/0, 1#6 G	
LV-EB2	LV-EB2	ESSENTIAL SWITCHGEAR B	ATS QB2 (PANEL P4DCR4)	(2) 2-1/2"C	4#300KCMIL, 1#1 G	
LV-EB3	LV-EB3	ESSENTIAL SWITCHGEAR B	ATS QB1 (PANEL QDPB)	(2) 3"C	4#350KCMIL, 1#1 G	
LV-EB1	LV-EB4	ESSENTIAL SWITCHGEAR B	ATS CB1 (PANEL CDPB)	(2) 3"C	4#300KCMIL, 1#1 G	
LV-EB5	LV-EB5	ESSENTIAL SWITCHGEAR B	ATS LS (LIFE SAFETY) BLDG 1 - MCC-2E	2"C	3#4/0, 1#1 G	VIA 150KVA XMFR BLDG 1

AMENDMENT DRAWING

SUPERSEDES ES800

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REVISION 1	04-01-16
Revisions	Date

CONSULTANTS:

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Tel 206.267.1700
Fax 206.267.1701
SAZAN # 269-1507

Drawing Title: FEEDER SCHEDULES

Approved Project Director: - - VAPAHCS PLANNING AND ENGINEERING

Project Title: VA PUGET SOUND HEALTH CARE SYSTEM UPGRADE SEATTLE ELECTRICAL DISTRIBUTION FROM 5kV TO 15kV

Location: 1660 South Columbian Way, Seattle, WA 98108

Date: 02-25-2016 | Checked: K.ANDERSON | Drawn: M.CAILAO

Project Number: 663-15-102

Building Number: 100

Drawing Number: ES800R

Dwg -- of --

Office of Construction and Facilities Management

Department of Veterans Affairs

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VA FORM 08-6231

TEMPORARY FEEDER SCHEDULE

FEEDER NO/TAG	QTY	CABLES/CONDUCTORS
TA1	5-SET	4#600KCMIL, 1#400KCMIL G
TA3	3-SET	4#500KCMIL, 1#250KCMIL G
TA5	2-SET	4#500KCMIL, 1#250KCMIL G
TA7	1-SET	4#350KCMIL, 1#1/0 G
TA8	2-SET	4#750KCMIL, 1#3/0 G
TA10	2-SET	4#750KCMIL, 1#3/0 G
TA12	4-SET	4#500KCMIL, 1#250KCMIL G
TD1	1-SET	3#500KCMIL, 1#1 G
TD2	1-SET	3#500KCMIL, 1#1 G
TD3	1-SET	3#3/0, 1#4 G
TD4	1-SET	4#6, 1#6 G
TD5	1-SET	3#3/0, 1#4 G
TD6	1-SET	4#3/0, 1#4 G
TE1	1-SET	3#500KCMIL, 1#1 G
TE2	1-SET	3#500KCMIL, 1#1 G
TE3	1-SET	3#3/0, 1#4 G
TE4	1-SET	3#6, 1#6 G
TE5	1-SET	3#3/0, 1#4 G
TE6	1-SET	4#1, 1#4 G
TE7	2-SET	4#750KCMIL, 1#3/0 G
TE8	4-SET	4#500KCMIL, 1#250KCMIL G

OP2

TEMPORARY FEEDER SCHEDULE

#	FEEDER NO/TAG	FROM	TO	CONDUIT	CABLES/ CONDUCTORS	CONSTRUCTION SEQUENCE
1	HV-2-4	5KV BKR 2-4 POWER POLE	MH-ET1	4"C	3#350KCMIL, 5kV, 1C, SHIELDED EPR, TYPE MV-105, 133% INSULATION LEVEL, 1#2G	27
2	HV-2-4	MH-ET1	STEP UP 2500KVA XMFR PRIMARY	4"C	3#500KCMIL, 5kV, 1C, SHIELDED EPR, TYPE MV-105, 133% INSULATION LEVEL, 1#2G	27
3	TD1-TD2 COM	STEP UP 2500KVA XMFR SECONDARY	TD1-TD2 COM	3"C	3#1/0, 15kV, 1C, SHIELDED EPR, TYPE MV-105, 133% INSULATION LEVEL, 1#2G	26
4	SOUTH SCL	SOUTH EUSERC	MH-ET1	4"C	3#1/0, 15kV, 1C, SHIELDED EPR, TYPE MV-105, 133% INSULATION LEVEL, 1#2G	118
5	SOUTH SCL	MH-ET1	TD1-TD2 COM	4"C	3#350KCMIL, 15kV, 1C, SHIELDED EPR, TYPE MV-105, 133% INSULATION LEVEL, 1#4/0G	118
6	TEMP 15KV #1	TD1	MH-ET1	3"C	3#1/0, 15kV, 1C, SHIELDED EPR, TYPE MV-105, 133% INSULATION LEVEL, 1#2G	25
7	TEMP 15KV #2	TD2	MH-ET1	3"C	3#1/0, 15kV, 1C, SHIELDED EPR, TYPE MV-105, 133% INSULATION LEVEL, 1#2G	25

three inches = one foot 6"
one and one half inches = one foot 1 0 6"
one inch = one foot 2 0 6"
three quarters inch = one foot 2 0 6"
one half inch = one foot 4 0
three eighths inch = one foot 4 0
one quarter inch = one foot 8 4 0
one eighth inch = one foot 16 8 4 0

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REVISION 1	04-01-16
Revisions	Date

CONSULTANTS:

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SAZAN # 269-1507

Drawing Title: FEEDER SCHEDULES

Approved Project Director: - - VAPAHCS PLANNING AND ENGINEERING

Project Title: VA PUGET SOUND HEALTH CARE SYSTEM UPGRADE SEATTLE ELECTRICAL DISTRIBUTION FROM 5kV TO 15kV

Location: 1660 South Columbian Way, Seattle, WA 98108

Date: 02-25-2016 | Checked: K.ANDERSON | Drawn: M.CAILAO

Project Number: 663-15-102

Building Number: 100

Drawing Number: ES801R

Dwg. -- of --

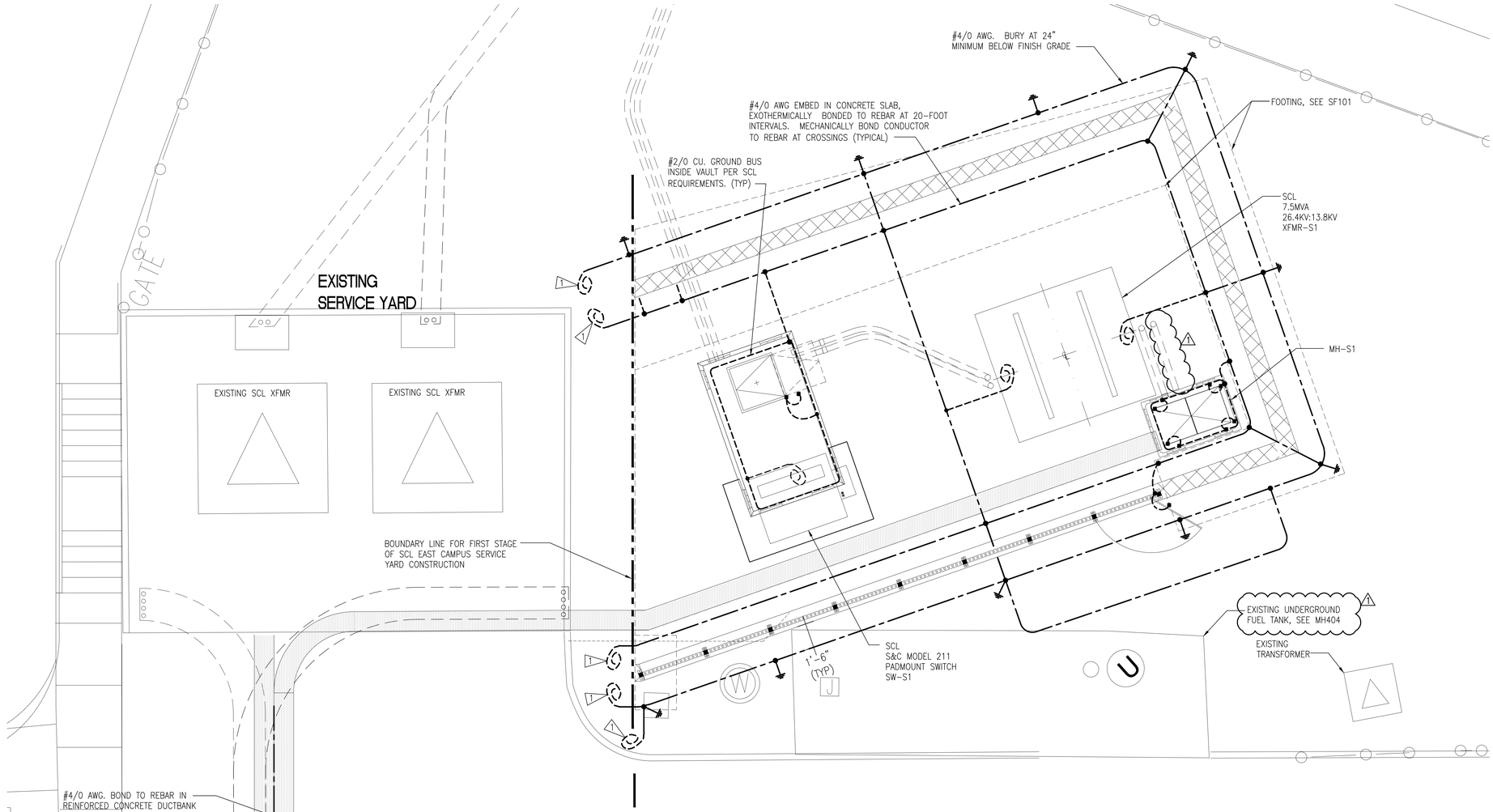
Office of Construction and Facilities Management

Department of Veterans Affairs

AMENDMENT DRAWING

SUPERSEDES ES801

VA FORM 08-6231



SEATTLE CITY LIGHT (SCL) EAST CAMPUS ENLARGED SERVICE YARD - GROUNDING PLAN TEMPORARY #1

SCALE: 1/4"= 1'-0"

N

0 1 2 4 8 12
1/4"=1'-0" feet

LEGEND

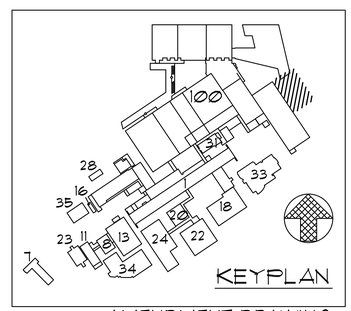
- GROUND ROD, 5/8" x 8'-0" LONG, COPPER CLAD STEEL, SECTIONAL. ALL GROUNDING CONNECTIONS EXOTHERMICALLY WELDED
- #4/0 AWG, BARE, STRANDED, SOFT DRAWN COPPER CONDUCTOR
- #2 AWG, BARE, STRANDED, SOFT DRAWN COPPER CONDUCTOR
- GROUNDING CONDUCTORS BONDED BY EXOTHERMICALLY WELDING AT INTERSECTIONS
- #2 AWG EXOTHERMICALLY WELDED TO REINFORCING STEEL IN CMU WALL AND TO #4/0 AWG GROUNDING CONDUCTOR
- #4/0 AWG GROUNDING CONDUCTOR MECHANICALLY BONDED TO EQUIPMENT
- #2 AWG GROUNDING CONDUCTOR MECHANICALLY BONDED TO EQUIPMENT
- FLEXIBLE COPPER GROUNDING BRAID MECHANICALLY BONDED.
- 9 FOOT LONG # 2/0 AWG GROUNDING CONDUCTOR COILED NEAR EQUIPMENT LOCATION. CONNECTIONS TO EQUIPMENT BY SCL

GENERAL NOTES:

1. REFER TO ARCHITECTURAL, CIVIL, MECH, AND STRUCTURAL DRAWINGS FOR RELATED WORK NOT SHOWN ON THIS DRAWING.
2. FIELD VERIFY EXISTING CONDITIONS PRIOR TO COMMENCING WORK.
3. REFER TO SEQUENCE OF CONSTRUCTION NORMAL POWER SYSTEM AND ESSENTIAL POWER SYSTEM UPGRADE, ES003 AND ES004.
4. ALL WORK IN EAST CAMPUS SERVICE YARD SHALL BE PER SEATTLE CITY LIGHT (SCL) REQUIREMENTS.
5. COORDINATE ALL WORK IN EAST CAMPUS SERVICE YARD WITH SEATTLE LIGHTING PRIOR COMMENCING WORK.
6. REFER TO 100-EP201 FOR SCL EAST CAMPUS SERVICE YARD EQUIPMENT ELEVATION.
7. REFER TO 100-EP401 SERIES FOR SCL EAST CAMPUS SERVICE YARD - POWER

CONSTRUCTION NOTES:

1. PROVIDE EXCESS LENGTH FOR CONNECTION TO GROUND WIRE INSTALLED DURING THE NEXT CONSTRUCTION PHASE.



AMENDMENT DRAWING

SUPERSEDES EY401T1

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REVISION 1	04-01-16
Revisions:	Date

CONSULTANTS:

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SAZAN # 269-1507

Drawing Title: SCL EAST CAMPUS ENLARGED SERVICE YARD- GROUNDING PLAN TEMPORARY #1

Approved: Project Director
-
-
VAPAHCS PLANNING AND ENGINEERING

Project Title: VA PUGET SOUND HEALTH CARE SYSTEM UPGRADE SEATTLE ELECTRICAL DISTRIBUTION FROM 5kV TO 15kV

Location: 1660 South Columbian Way, Seattle, WA 98108

Date	Checked	Drawn
02-25-2016	A. WOOLF	S. LIM

Project Number: 663-15-102

Building Number: 100

Drawing Number: EY401T1R

Dwg. -- of --

Office of Construction and Facilities Management

Department of Veterans Affairs

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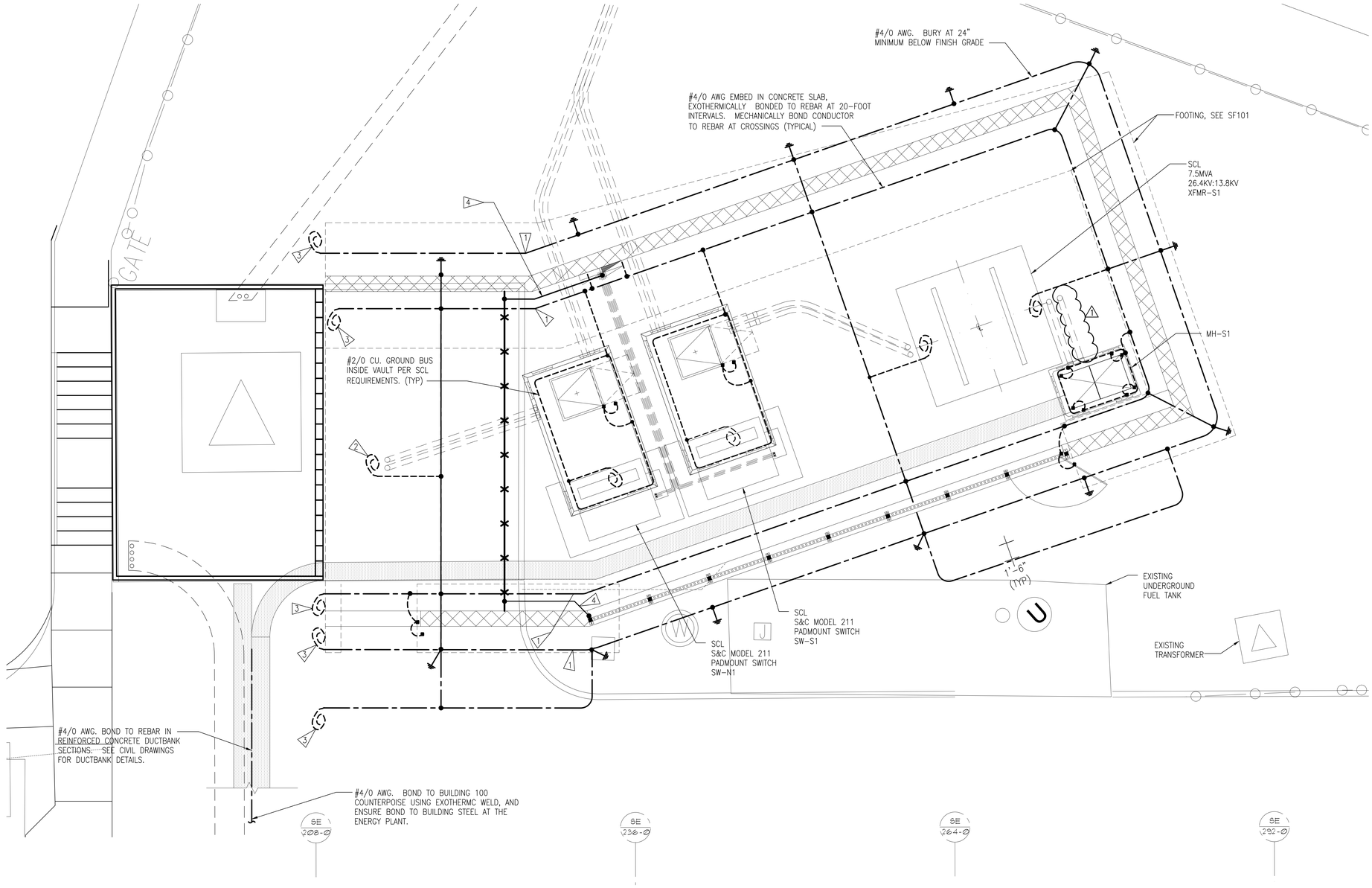
VA FORM 08-6231



LEGEND

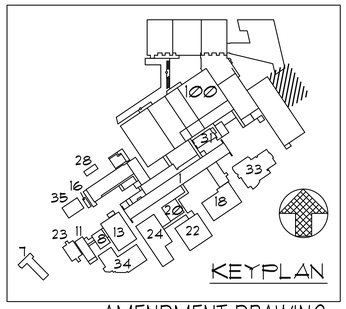
- GROUND ROD, 5/8" x 8'-0" LONG, COPPER CLAD STEEL, SECTIONAL. ALL GROUNDING CONNECTIONS EXOTHERMICALLY WELDED
- #4/0 AWG, BARE, STRANDED, SOFT DRAWN COPPER CONDUCTOR
- #2 AWG, BARE, STRANDED, SOFT DRAWN COPPER CONDUCTOR
- GROUNDING CONDUCTORS BONDED BY EXOTHERMICALLY WELDING AT INTERSECTIONS
- #2 AWG EXOTHERMICALLY WELDED TO REINFORCING STEEL IN CMU WALL AND TO #4/0 AWG GROUNDING CONDUCTOR
- #4/0 AWG GROUNDING CONDUCTOR MECHANICALLY BONDED TO EQUIPMENT
- #2 AWG GROUNDING CONDUCTOR MECHANICALLY BONDED TO EQUIPMENT
- FLEXIBLE COPPER GROUNDING BRAID MECHANICALLY BONDED.
- 9 FOOT LONG # 2/0 AWG GROUNDING CONDUCTOR COILED NEAR EQUIPMENT LOCATION. CONNECTIONS TO EQUIPMENT BY SCL

GENERAL NOTES:

1. REFER TO ARCHITECTURAL, CIVIL, MECH, AND STRUCTURAL DRAWINGS FOR RELATED WORK NOT SHOWN ON THIS DRAWING.
2. FIELD VERIFY EXISTING CONDITIONS PRIOR TO COMMENCING WORK.
3. REFER TO SEQUENCE OF CONSTRUCTION NORMAL POWER SYSTEM AND ESSENTIAL POWER SYSTEM UPGRADE, ES003 AND ES004.
4. ALL WORK IN EAST CAMPUS SERVICE YARD SHALL BE PER SEATTLE CITY LIGHT (SCL) REQUIREMENTS.
5. COORDINATE ALL WORK IN EAST CAMPUS SERVICE YARD WITH SEATTLE LIGHTING PRIOR COMMENCING WORK.
6. REFER TO 100-EP201 FOR SCL EAST CAMPUS SERVICE YARD EQUIPMENT ELEVATION.
7. REFER TO 100-EP401 SERIES FOR SCL EAST CAMPUS SERVICE YARD - POWER

CONSTRUCTION NOTES:

1. BOND NEW GROUND WIRE TO PREVIOUSLY INSTALLED WIRE.
2. PROVIDE ABOVE GRADE PIGTAIL FOR FUTURE TRANSFORMER PAD.
3. PROVIDE EXCESS LENGTH FOR CONNECTION TO GROUND WIRE INSTALLED DURING THE NEXT CONSTRUCTION PHASE.
4. INSTALL BOND FOR TEMPORARY FENCE USING #2 GREEN XHHW WIRE. CONNECT TO GROUND SYSTEM PREVIOUSLY INSTALLED. SECURE BOND WIRE ABOVE GRADE ON WALL. REMOVE BOND WIRE WHEN TEMPORARY FENCE IS REMOVED.



SEATTLE CITY LIGHT (SCL) EAST CAMPUS ENLARGED SERVICE YARD - GROUNDING PLAN TEMPORARY #2

SCALE: 1/4"= 1'-0"

0 1 2 4 8 12
1/4"=1'-0" feet

AMENDMENT DRAWING

SUPERSEDES EY401T2

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REVISION 1	04-01-16
Revisions	Date

CONSULTANTS:

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600 Stewart St., Ste 1400
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SAZAN # 269-1507

Drawing Title: SCL EAST CAMPUS ENLARGED SERVICE YARD- GROUNDING PLAN TEMPORARY #2

Approved Project Director: - - VAPAHCS PLANNING AND ENGINEERING

Project Title: VA PUGET SOUND HEALTH CARE SYSTEM UPGRADE SEATTLE ELECTRICAL DISTRIBUTION FROM 5kV TO 15kV

Location: 1660 South Columbian Way, Seattle, WA 98108

Date: 02-25-2016 | Checked: A. WOOLF | Drawn: S. LIM

Project Number: 663-15-102

Building Number: 100

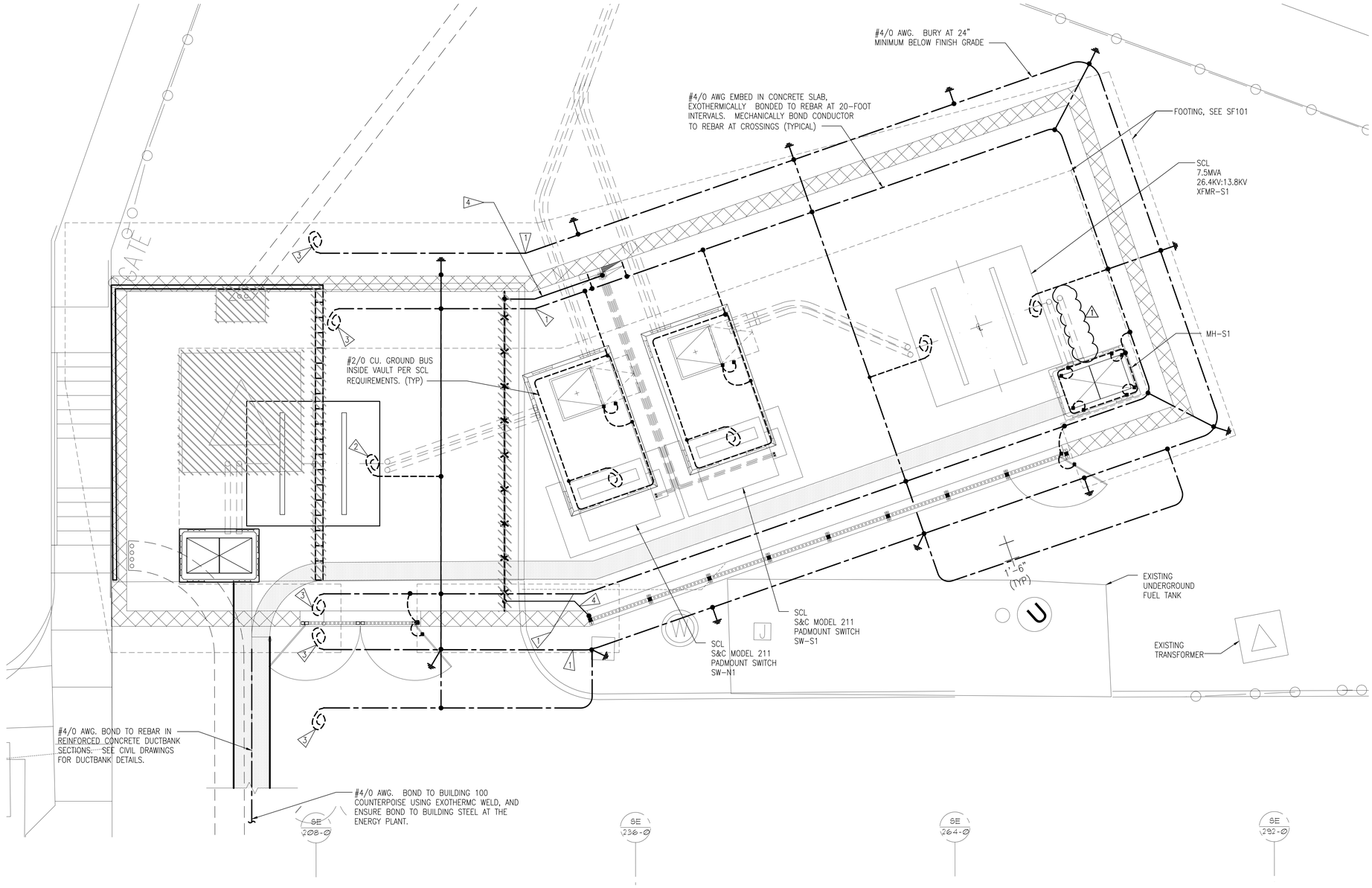
Drawing Number: EY401T2R

Dwg. -- of --

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231



LEGEND

- GROUND ROD, 5/8" x 8'-0" LONG, COPPER CLAD STEEL, SECTIONAL. ALL GROUNDING CONNECTIONS EXOTHERMICALLY WELDED
- #4/0 AWG, BARE, STRANDED, SOFT DRAWN COPPER CONDUCTOR
- #2 AWG, BARE, STRANDED, SOFT DRAWN COPPER CONDUCTOR
- GROUNDING CONDUCTORS BONDED BY EXOTHERMICALLY WELDING AT INTERSECTIONS
- #2 AWG EXOTHERMICALLY WELDED TO REINFORCING STEEL IN CMU WALL AND TO #4/0 AWG GROUNDING CONDUCTOR
- #4/0 AWG GROUNDING CONDUCTOR MECHANICALLY BONDED TO EQUIPMENT
- #2 AWG GROUNDING CONDUCTOR MECHANICALLY BONDED TO EQUIPMENT
- FLEXIBLE COPPER GROUNDING BRAID MECHANICALLY BONDED.
- 9 FOOT LONG # 2/0 AWG GROUNDING CONDUCTOR COILED NEAR EQUIPMENT LOCATION. CONNECTIONS TO EQUIPMENT BY SCL

GENERAL NOTES:

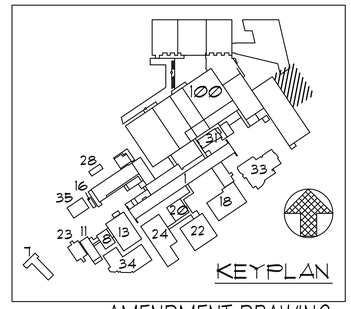
1. REFER TO ARCHITECTURAL, CIVIL, MECH, AND STRUCTURAL DRAWINGS FOR RELATED WORK NOT SHOWN ON THIS DRAWING.
2. FIELD VERIFY EXISTING CONDITIONS PRIOR TO COMMENCING WORK.
3. REFER TO SEQUENCE OF CONSTRUCTION NORMAL POWER SYSTEM AND ESSENTIAL POWER SYSTEM UPGRADE, ES003 AND ES004.
4. ALL WORK IN EAST CAMPUS SERVICE YARD SHALL BE PER SEATTLE CITY LIGHT (SCL) REQUIREMENTS.
5. COORDINATE ALL WORK IN EAST CAMPUS SERVICE YARD WITH SEATTLE LIGHTING PRIOR COMMENCING WORK.
6. REFER TO 100-EP201 FOR SCL EAST CAMPUS SERVICE YARD EQUIPMENT ELEVATION.
7. REFER TO 100-EP401 SERIES FOR SCL EAST CAMPUS SERVICE YARD - POWER

NOTES:

TASK IDENTIFICATION - SEE SEQUENCE OF CONSTRUCTION ON SHEETS ES003 AND ES004.

CONSTRUCTION NOTES:

1. BOND NEW GROUND WIRE TO PREVIOUSLY INSTALLED WIRE.
2. PROVIDE ABOVE GRADE PIGTAIL FOR FUTURE TRANSFORMER PAD.
3. PROVIDE EXCESS LENGTH FOR CONNECTION TO GROUND WIRE INSTALLED DURING THE NEXT CONSTRUCTION PHASE.
4. INSTALL BOND FOR TEMPORARY FENCE USING #2 GREEN XHHW WIRE. CONNECT TO GROUND SYSTEM PREVIOUSLY INSTALLED. SECURE BOND WIRE ABOVE GRADE ON WALL. REMOVE BOND WIRE WHEN TEMPORARY FENCE IS REMOVED.



SEATTLE CITY LIGHT (SCL) EAST CAMPUS
ENLARGED SERVICE YARD - GROUNDING PLAN TEMPORARY #3

SCALE: 1/4"= 1'-0"

N

0 1 2 4 8 12
1/4"=1'-0" feet

AMENDMENT DRAWING

SUPERSEDES EY401T3

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REVISION 1	04-01-16
Revisions	Date

CONSULTANTS:

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SAZAN # 269-1507

Drawing Title: SCL EAST CAMPUS ENLARGED SERVICE YARD- GROUNDING PLAN TEMPORARY #3

Approved Project Director: - - VAPAHCS PLANNING AND ENGINEERING

Project Title: VA PUGET SOUND HEALTH CARE SYSTEM UPGRADE SEATTLE ELECTRICAL DISTRIBUTION FROM 5kV TO 15kV

Location: 1660 South Columbian Way, Seattle, WA 98108

Date: 02-25-2016 | Checked: A. WOOLF | Drawn: S. LIM

Project Number: 663-15-102

Building Number: 100

Drawing Number: EY401T3R

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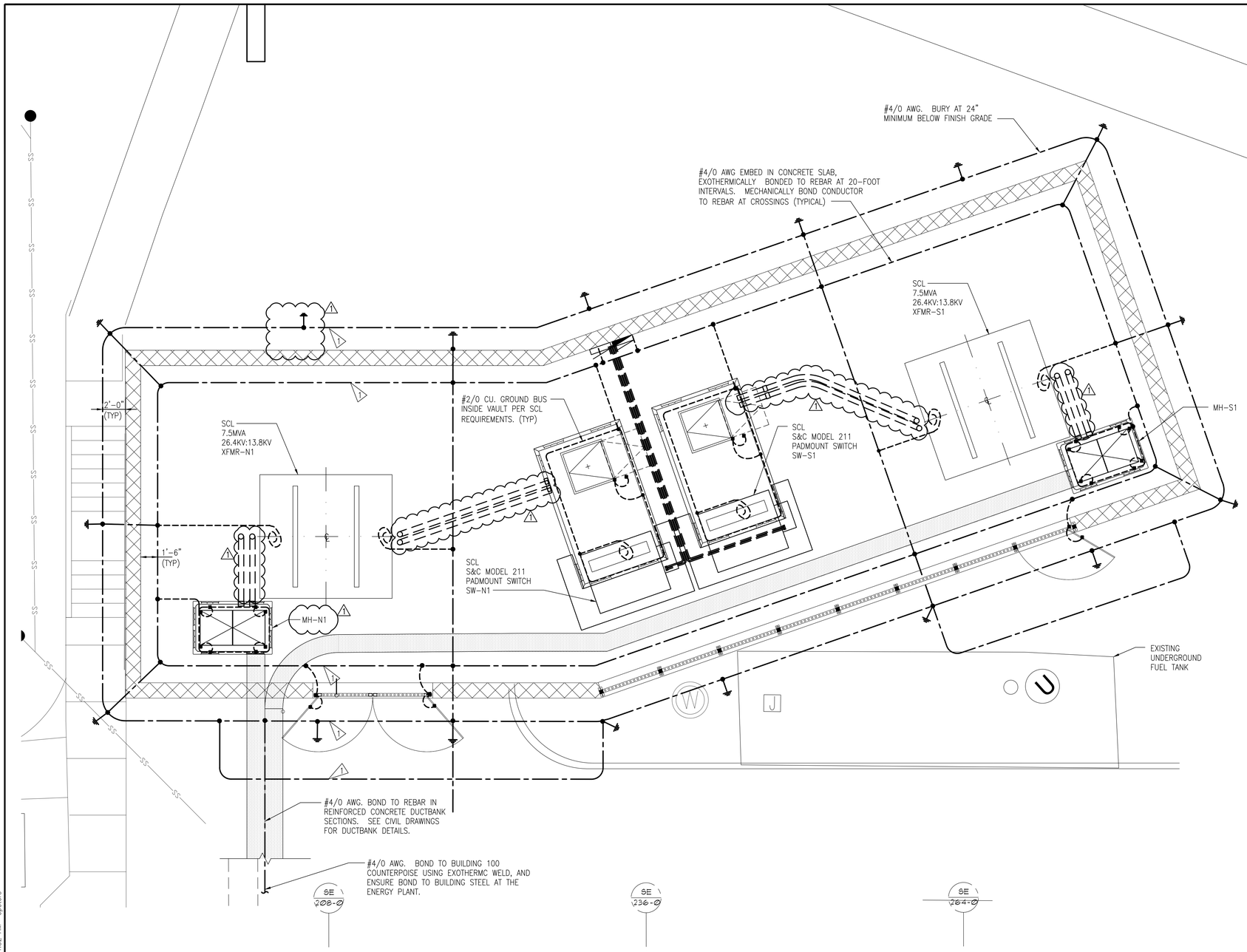
Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231



SEATTLE CITY LIGHT (SCL) EAST CAMPUS ENLARGED SERVICE YARD - GROUNDING PLAN

SCALE: 1/4"= 1'-0"

0 1 2 4 8 12

1/4"=1'-0" feet

N

LEGEND

- GROUND ROD, 5/8" x 8'-0" LONG, COPPER CLAD STEEL, SECTIONAL. ALL GROUNDING CONNECTIONS EXOTHERMICALLY WELDED
- #4/0 AWG, BARE, STRANDED, SOFT DRAWN COPPER CONDUCTOR
- #2 AWG, BARE, STRANDED, SOFT DRAWN COPPER CONDUCTOR
- GROUNDING CONDUCTORS BONDED BY EXOTHERMICALLY WELDING AT INTERSECTIONS
- #2 AWG EXOTHERMICALLY WELDED TO REINFORCING STEEL IN CMU WALL AND TO #4/0 AWG GROUNDING CONDUCTOR
- #4/0 AWG GROUNDING CONDUCTOR MECHANICALLY BONDED TO EQUIPMENT
- #2 AWG GROUNDING CONDUCTOR MECHANICALLY BONDED TO EQUIPMENT
- FLEXIBLE COPPER GROUNDING BRAID MECHANICALLY BONDED.
- 9 FOOT LONG # 2/0 AWG GROUNDING CONDUCTOR COILED NEAR EQUIPMENT LOCATION. CONNECTIONS TO EQUIPMENT BY SCL

GENERAL NOTES:

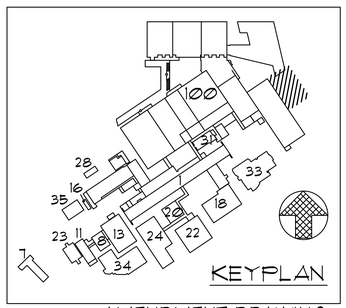
1. REFER TO ARCHITECTURAL, CIVIL, MECH, AND STRUCTURAL DRAWINGS FOR RELATED WORK NOT SHOWN ON THIS DRAWING.
2. FIELD VERIFY EXISTING CONDITIONS PRIOR TO COMMENCING WORK.
3. REFER TO SEQUENCE OF CONSTRUCTION NORMAL POWER SYSTEM AND ESSENTIAL POWER SYSTEM UPGRADE, ES003 AND ES004.
4. ALL WORK IN EAST CAMPUS SERVICE YARD SHALL BE PER SEATTLE CITY LIGHT (SCL) REQUIREMENTS.
5. COORDINATE ALL WORK IN EAST CAMPUS SERVICE YARD WITH SEATTLE LIGHTING PRIOR COMMENCING WORK.
6. REFER TO 100-EP201 FOR SCL EAST CAMPUS SERVICE YARD EQUIPMENT ELEVATION.
7. REFER TO 100-EP401 SERIES FOR SCL EAST CAMPUS SERVICE YARD - POWER

NOTES:

TASK IDENTIFICATION - SEE SEQUENCE OF CONSTRUCTION ON SHEETS ES003 AND ES004.

CONSTRUCTION NOTES:

1 BOND NEW GROUND WIRE TO PREVIOUSLY INSTALLED WIRE.



AMENDMENT DRAWING

SUPERSEDES EY401

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REVISION 1	04-01-16
Revisions	Date

CONSULTANTS:

SĀZĀN GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 269-1507

Drawing Title: SCL EAST CAMPUS ENLARGED SERVICE YARD- GROUNDING PLAN

Approved Project Director: - - VAPAHCS PLANNING AND ENGINEERING

Project Title: VA PUGET SOUND HEALTH CARE SYSTEM UPGRADE SEATTLE ELECTRICAL DISTRIBUTION FROM 5kV TO 15kV

Location: 1660 South Columbian Way, Seattle, WA 98108

Date: 02-25-2016 | Checked: A. WOOLF | Drawn: S. LIM

Project Number: 663-15-102

Building Number: 100

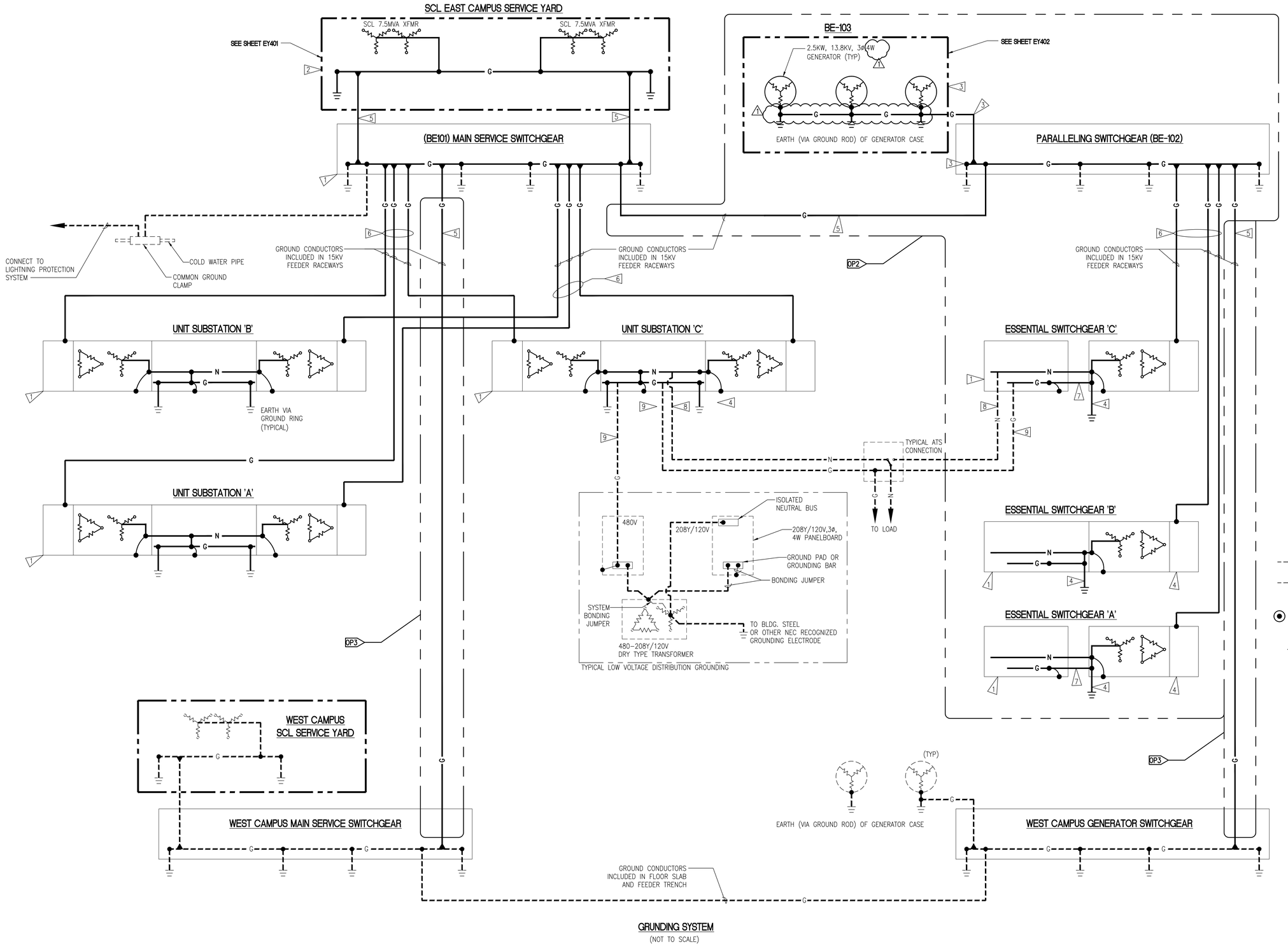
Drawing Number: EY401R

Dwg. --- of ---

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231



GRUNDING SYSTEM
(NOT TO SCALE)

GENERAL NOTES:

1. NEW SWITCHGEAR, SUBSTATIONS, AND EQUIPMENT SHALL BE GROUNDED PER NEC.
2. EXISTING GROUNDING ELECTRODE SYSTEM SHALL BE UTILIZED TO THE EXTENT POSSIBLE FOR GROUNDING NEW SWITCHGEAR AND SUBSTATIONS. DAMAGED GROUNDING ELECTRODE CONDUCTORS SHALL BE REPLACED WITH NEW OF EQUIVALENT SIZE.
3. CONNECTIONS TO OR EXTENSION OF EXISTING GROUNDING ELECTRODE CONDUCTORS SHALL BE EXOTHERMICALLY WELDED.

NOTES:

TASK IDENTIFICATION – SEE SEQUENCE OF CONSTRUCTION ON SHEET ES003 AND ES004.

CONSTRUCTION NOTES:

1. PROTECT EXISTING GROUND SYSTEM DURING REPLACEMENT OF EXISTING SWITCHGEAR AND MODIFICATION OF HOUSEKEEPING PAD.
2. INSTALL NEW SERVICE YARD GROUND SYSTEM PER DRAWING 100-EY401.
3. INSTALL NEW GENERATOR SYSTEM GROUND PER DRAWING 100-EY402.
4. INSTALL #3/0 GROUND CONNECTION TO BUILDING STEEL.
5. INSTALL #4/0 COPPER GROUND WIRE WITH NEW 15KV SERVICE OR INTERTIE FEEDER.
6. INSTALL #1/0 COPPER GROUND WIRE WITH NEW 15KV FEEDER.
7. INSTALL EGC BETWEEN SECTIONS PER PLAN DRAWINGS.
8. PROVIDE NEW NEUTRAL CONDUCTOR WITH FEEDER PER PLAN DRAWINGS AND FEEDER SCHEDULES. (TYPICAL)
9. PROVIDE NEW EQUIPMENT GROUNDING CONDUCTOR WITH FEEDER PER PLAN DRAWINGS AND FEEDER SCHEDULES. (TYPICAL)

LEGEND

- G — GROUNDING CONDUCTOR
- N — NEUTRAL CONNECTION
- GROUND ROD, 5/8" x 8'-0" LONG, COPPER CLAD STEEL, SECTIONAL. ALL GROUNDING CONNECTIONS EXOTHERMICALLY WELDED
- GROUNDING CONNECTION

AMENDMENT DRAWING

SUPERSEDES EY601

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REVISION 1	04-01-16
Revisions:	Date

CONSULTANTS:

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SAZAN # 269-1507

Drawing Title: GROUNDING DIAGRAM
-

Approved Project Director
-
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VAPAHCS PLANNING AND ENGINEERING

Project Title: VA PUGET SOUND HEALTH CARE SYSTEM UPGRADE SEATTLE ELECTRICAL DISTRIBUTION FROM 5kV TO 15kV

Location: 1660 South Columbian Way, Seattle, WA 98108

Date: 02-25-2016 | Checked: A. WOOLF | Drawn: S. LIM

Project Number: 663-15-102

Building Number: 100

Drawing Number: EY601R

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Office of Construction and Facilities Management

Department of Veterans Affairs

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